D 202.13: 35/4

D 202.13: 35/4

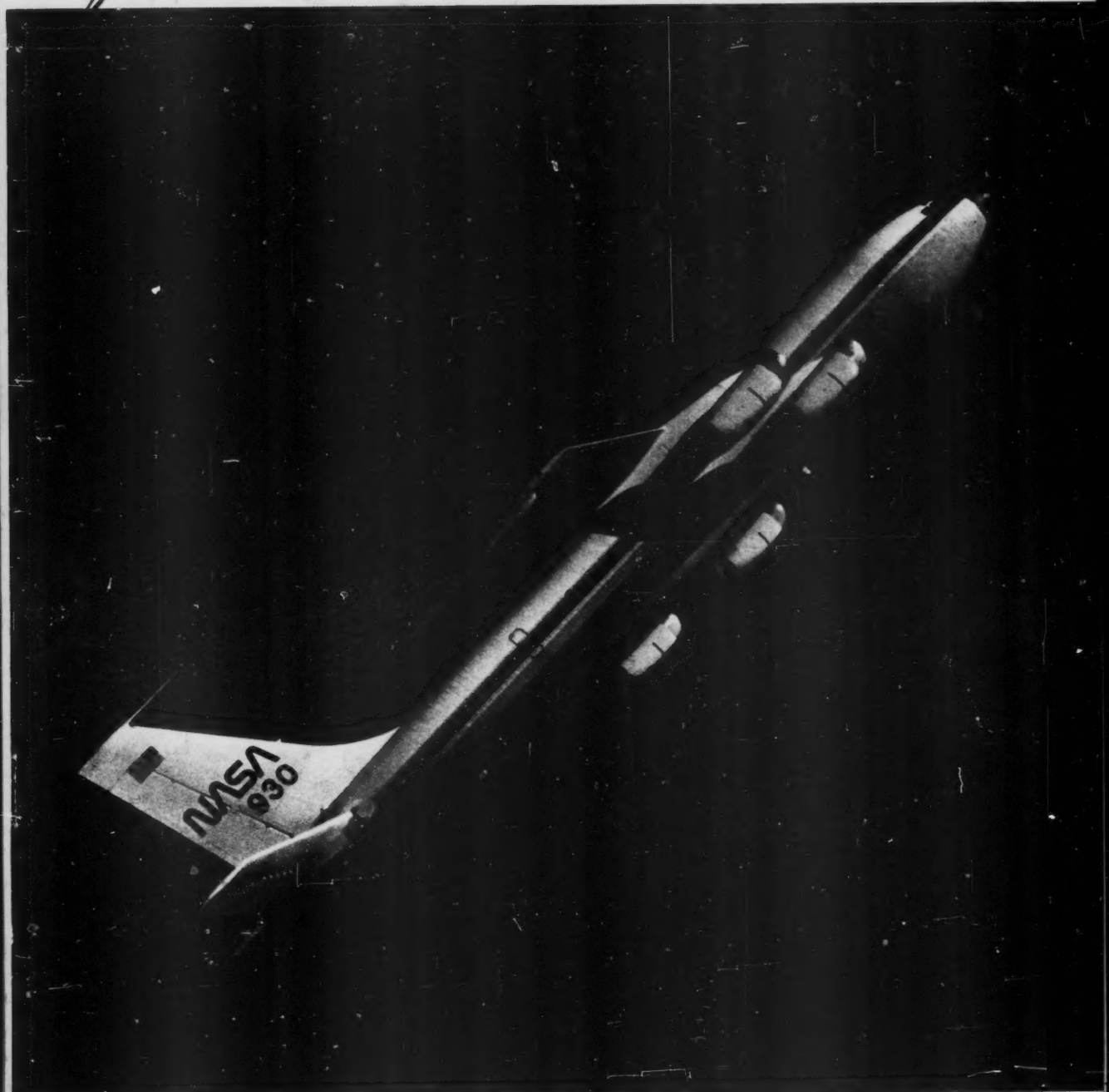
October 1989

approach

The Naval Aviation Safety Review

TECHNOLOGY AND SCIENCE
DETROIT PUBLIC LIBRARY

CONTIN



Inside: "What I Did During My Summer Vacation," beginning on page 2.

This month's editorial came from USS Lexington (AVT-16) [illegible] slogan/safety poster suggestions. Although it was written by [illegible] Officer for his shipmates, it really applies to all of us.

Ward Carroll
Editor

RTTUZYUW RULYLEX0001 0161730-UUUU--RUTWLEX.
ZNR UUUUU
R 161930Z JUN 88
FM LEXSAFOFF
TO USS LEXINGTON
BT
UNCLAS FOUO //NO 5102//
THIS IS A LIMITED USE MISHAP WARNING TO BE USED ONLY FOR SAFETY PURPOSES.
1. THIS REPORT CONCERNS A HAZARD TO CERTAIN NAVAL PERSONNEL AND UNITS. SUMMARY: A CONTAGIOUS DISEASE KNOWN AS QUOTE IT CAN'T HAPPEN TO ME UNQUOTE, IS KNOWN TO BE INFECTING MANY NAVAL COMMANDS.
2. DATA.
A. PERSONNEL/NO KNOWN IMMUNITY. CAN BE FATAL.
B. EQUIPMENT/SHIPS, AIRCRAFT AND ALL EQUIPMENT CAN BE DAMAGED OR DESTROYED.
C. SYMPTOMS./NO DEATHS, INJURIES OR DAMAGE TO EQUIPMENT FOR SOME TIME.-/FAILURE TO RECOGNIZE VULNERABILITY TO MISHAPS/EXCESSIVE FOCUS ON SHORT TERM MISSION SUCCESS.
3. CIRCUMSTANCES. THIS DISEASE USUALLY STARTS WITH INDIVIDUAL PERSONNEL AND MOST EASILY SPREADS FROM THE SUPERVISORY LEVEL DOWNWARD THROUGH AN ORGANIZATION. IN THE BEGINNING, PERSONNEL EXPERIENCE AN UNUSUALLY LONG PERIOD OF MISHAP-FREE OPERATIONAL SUCCESS AND ARE UNAWARE THAT THEY ARE BEGINNING TO FEEL INVULNERABLE. THIS EUPHORIC STATE IS SLOWLY INCREASED WHEN FURTHER MISSION SUCCESSES ARE EXPERIENCED WITHOUT SERIOUS DIFFICULTIES. MINOR DIFFICULTIES ARE OFTEN OVERCOME PURELY BY CHANCE AND THE EXPERIENCE AND GUTS OF COMMAND MEMBERS, AND NOT BY TRIED AND TRUE PREPARATION AND PROCEDURES. THIS TREND CONTINUES UNTIL CHANCE AND EXTRAORDINARY PERSONAL EFFORTS FAIL. A COMPLETE CHANGE OR ENVIRONMENT AND HAZARD EXPOSURE CAN ALSO END THIS EUPHORIC STATE. USUALLY THIS ENDING TAKES THE FORM OF A MISHAP. THE MOST DANGEROUS PART OF THIS DISEASE, QUOTE IT CAN'T HAPPEN TO ME UNQUOTE, IS THAT IT EASILY PASSES FROM PERSON TO PERSON UNTIL THE UNIT AS A WHOLE SUFFERS FROM IT.
4. RECOMMENDATIONS. THE ONLY KNOWN TREATMENT FOR THIS DISEASE IS RAISING THE LEVEL OF AWARENESS OF ALL KNOWN OR EXPECTED HAZARDS. THIS IS CERTAINLY AN ONGOING PROCESS BY ALL PERSONNEL, BUT MAY IN SOME CASES REQUIRE STOPPING WHAT YOU ARE DOING, STEPPING BACK AND TAKING A LOOK AT YOURSELF AND YOUR SITUATION — PAST, PRESENT AND FUTURE. SOME COMMANDS HAVE BEEN KNOWN TO CALL THIS PREVENTIVE TREATMENT A SAFETY STAND-DOWN. THEY REPORT THAT SUCCESSFUL STAND-DOWNS REQUIRE GROUP THOUGHT, COLLABORATION AND PARTICIPATION BY ALL LEVELS OF COMMAND IN THE LARGEST GROUPS POSSIBLE. WATCH FOR THE SYMPTOMS, BE SAFE OUT THERE.
BT
#0001

approach

Vol. 35 No. 4/October 1989

FEATURES

What I Did During My Summer Vacation 2
By Lt. Ward Carroll. Safety with the astronauts.

Flippin' Switches 8
By Capt. Keith Esplen, CF, and Bud Baer. F/A-18 switch proximity problem.

"I Can't Fly This Thing!" 10
By Lt. Garry Maynor. A P-3 crew helps a civilian in trouble.

The Electric Jet Syndrome 11
By Col. David C. Corbett. Fly the aircraft first, last and always.

A Discussion of F-14A Single-Engine Flight Technique 12
By LCdr. Bill Welch.

Decision to Divert 17
By Lt. Steve Squires. E-2 crew faces weather problems.

Air Show Gone Sour 18
By Lt. Stephen C. Kingston. CTE near-miss.

The Air Force Joins the Navy — For a While 20
By Peter Mersky. USAF F-15s mingle with the Navy.

Pop Top 23
By LCdr. J. Duncan Cooper. Inadvertant canopy jettisons.

"Frag Me Now, We'll Talk Later" 24
By Lt. David "Troll" Boal. An S-3's "simo-run" with an A-6.

When the Weight Doesn't Balance 26
By LCdr. Jerry Wilson. A C-9 with a bigger load than calculated.

Old Guys 30
By Cdr. Pat O'Neil. Stairs hurt too.

see page 2

see page 20

see page 26

Two Wrongs Made a Right (This Time) 31
By Lt. Robert L. Gross, Jr. He flew his crippled SH-2F to a safe landing.

Stealth S-3 36
By Lt. John A. Bullock. Lights out on a Viking.

Nosey is Safer 38
By Lt. Andy McCawley. Being observant could save a life.

An "E" Ticket Ride 39
By Lt. Kevin Hogan. An SH-3G in trouble ends up in mango trees.

The Cruise Doesn't End Before the Flyoff! 40
By LCdr. J.E. Nortz.

Baja Bomber 42
By LCdr. Jim Seaman. An A-6 goes off the runway.

The Alert 5 44
By Lt. Edward S. Wolski. An F/A-18 driver and an incomplete checklist.

The Deal of the Century Is the Scan of a Lifetime 46
By LCdr. Barry E. Rainey.

Toxic Trip to Trouble 47
By Lt. James Hunter. A C-130 and dangerous cargo.

DEPARTMENTS

Anymouse 16
Bravo Zulu 32
Letters 48
Brownshoes in Action Comix IBC

Front and Back Covers: NASA photographs

APPROACH (ISSN 0570-4979) contents should not be considered directive and may not be construed as incriminating under Art. 31 of the Uniform Code of Military Justice. Views expressed in guest-written articles are not necessarily those of the Naval Safety Center. The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law. It is funded and printed in accordance with all Navy publishing and printing regulations and approval of the Navy Publications and Printing Policy Committee. Second-Class Postage Paid at Norfolk, Va., and additional mailing office. Approach is available for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

POSTMASTER: Send address changes to APPROACH Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.

Capt. L.F. Norton, Commander, Naval Safety Center
Col. John P. Oppenhuizen, Deputy Commander
Capt. W.J. Mooberry, Chief of Staff
Capt. K.G. Craig, Director, Aviation Safety Programs
Cdr. John D. Reid, Head, Media and Educational Support
Lt. Ward Carroll, Editor

Approach is a monthly publication published by the Commander, Naval Safety Center. Address comments, contributions and subscription requests to:

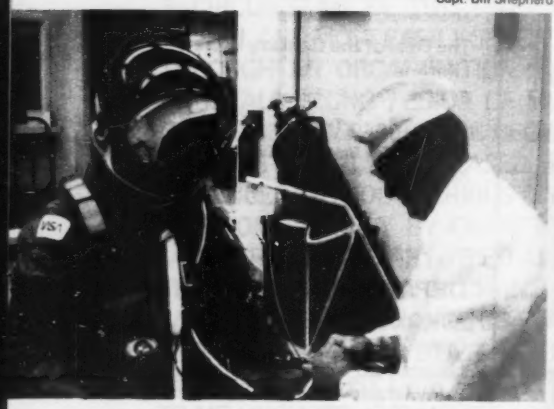
Commander, Naval Safety Center
NAS Norfolk, VA 23511-5796
Attention: Approach — Code 74
Telephone: Commercial 804-444-7416, Autovon 564-7416

Detroit Public Library
JUN 6 1990
Depository Document

What I Did During My Summer Vacation

By Lt. Ward Carroll

Capt. Bill Shepherd



Al Rochford, NASA engineer, wires the author for sound.

Capt. Bill Shepherd

Limited mobility while pressurized. The ring for attaching to the escape pole is locked inside blue nylon cover on the right shoulder strap.

NASA

Hanging around at O-G. The KC-135 flies a parabolic profile that provides about 25 seconds of weightless flight.

THE "Challenger" mishap is one of those events that etch themselves in your memory — people recall exactly where they were the moment they heard about it. I was in my squadron's ready room briefing for a hop. The SDO received a call from home, slammed down the phone and switched the TV from the weather data to a normal commercial station. The graphic replay of the explosion caused the usually busy ready room to come to a complete stop. My pilot, who was also the squadron's skipper, cancelled our event, locked his office and went home for the day. He was good friends with Cdr. Mike Smith, Challenger's pilot.

Three and a half years later, I had the chance to travel to Johnson Space Center in Houston, Texas, and talk with many of the principals involved with the space program at the time of the Challenger disaster. I was curious about how NASA's approach to safety had changed since January of 1986. I was also interested in their training and how it compared to the way we do it in the Navy.

An important source for NASA safety information is Capt. John Young, USN. Capt. Young, a former Navy pilot, is the Special Assistant to the Center Director for Engineering Operations and Safety. He is also a good part of the corporate memory as the veteran of two Gemini missions (3 and 10), two Apollo missions (10 and 16) and two shuttle missions (STS-1 and STS-9).

"There were a few instances prior to Challenger when somebody was looking out for us besides ourselves," Capt. Young said. During an ascent, a shuttle unexpectedly passed through a rainstorm, but, luckily, suffered no serious damage.

Another mission was scrubbed due to bad weather at the alternate landing site in Dakar. During the turnaround for the following countdown, the engineers discovered the shuttle's main fuel tank was not full. That would have been like launching on a long cross-country with a bounce load.

Capt. Young's main focus the day we spoke was on the shuttle's escape system. A large circular table in his office was covered with engineering diagrams of various ideas.

"I wish the shuttle had an escape system," he observed. He went on to describe how the original shuttle had ejection seats. He also mentioned how both the Gemini

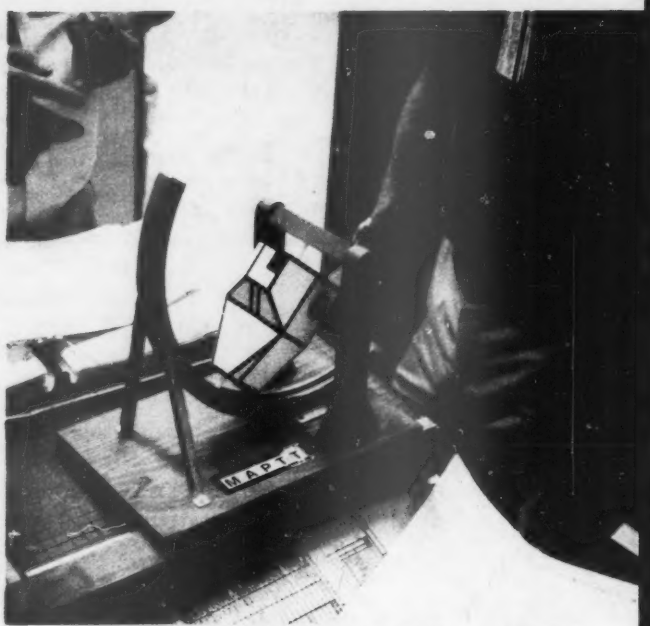
Capt. John Young checks his hang time while saluting the flag during the Apollo 16 mission.

and Apollo programs had sophisticated escape systems. After STS-4, the shuttle program was declared operational, the crews increased in size, and the ejection seats were removed. An escape pod like that on the B-1 proved to be too heavy. Basically, there are two major obstacles in the way of shuttle escape system development: time and money.

"The first time I indicated a need for an escape system following 'Challenger,' an engineer stood up and said it would take $600 million to install it," Capt. Young said. Not a good selling point for a program that is eventually supposed to pay for itself by deploying satellites and space vehicles for other nations and private firms.

The second problem is time. "It would take another accident to allow us the time to incorporate an escape system," Capt. Young stated. The program cannot afford the down time.

If you don't have time and money, you need to direct your attention toward existing resources and technology. This was the idea behind the development of the escape pole. While not a solution for a mishap like Challenger, it is a step in the direction of survivability.



Lt. Ward Carroll

A miniature mock-up of an idea for the shuttle egress trainer.

Capt. Bill Shepherd

Close-up of the Frost fittings on the astronaut's harness. Unlike Koch fittings, these spring open when unlatched, Also, note SEAWARS.

The pole is deployed by the mission specialist seated next to the hatch on the left side of the shuttle. It extends 8 feet out the hatch. Each crew member hooks on to the pole using a D-ring that is attached to their harness. The pole is designed to carry the crew away from the shuttle and under the wing. The pole has been installed in a conventional aircraft and tested by military paratroopers.

Crew mobility during an egress is a concern. Astronauts now wear partial-pressure suits during the ascent and re-entry phases of a mission. I experienced firsthand how hard the suits are to move in while pressurized. Al Rochford, who suited up Wally Schirra for his Mercury flight, gave me a brief on the astronaut's gear and then wedged me into a suit. The suit was pressurized, and Al told me to stand up and put my arms over my head as far as I could. Imagine being in a full-body G-suit during a seven-G pull. I barely got my arms even with my shoulders. If a shuttle crew had to attempt an egress at high altitude, their suits would be pressurized. This would make releasing fittings, finding the D-ring and hooking onto the pole a tough and time-consuming job.

Developing the escape system is only one of the post-Challenger changes NASA has made. Before Challenger, the gap between engineer and astronaut had grown so far that each was acting almost independently. As Naval Aviators know, equipment and systems developed with the best intentions can prove impractical without user feedback on how well they work. Astronauts are now more involved with the engineering side of a mission. A flight readiness review is conducted three weeks prior to a launch. This review is a kind of "howgozit" for all parts of the mission and also forces the crew and engineers to meet one-on-one. An " 'L' minus one" brief is held the day prior to a scheduled launch. This is a follow-on to the flight readiness review as well as a detailed analysis of potential trouble spots. Post-mission debriefs have become more thorough. Engineers question the crew about equipment performance beyond data readouts. It's a safer, more practical approach.

The bulk of NASA's safety effort is handled by non-aviators. These engineers and civilians look at safety programs differently, which can be frustrating for astronauts with a military aviation background. The astronaut safety representative has been more closely integrated with the NASA Safety, Reliability and Quality Assurance (SR&QA) experts as a result of the Challenger disaster. In addition, NASA has instituted the NASA Safety Reporting System (NSRS). This program supplements the existing safety reporting procedures. It is run by an independent contractor that collects and analyzes the reports and provides summaries to NASA safety. The system also provides for anonymity, if requested. Unlike the Navy, employees can be fired at NASA.

"You've got to remember, NASA is not the military," Col. Bryan O'Connor told me. He was told that when he took over the collateral duty as Astronaut Safety Representative several years ago. Col. O'Connor's background as an AV-8 driver and a TPS graduate prior to becoming an astronaut had given him some guidance on how to approach the safety business. However, his ideas met with some resistance. For instance, the idea of filling out an unannounced T-38 boldface exam at an astronaut meeting was squelched by senior members. The general feeling was that TPS graduates with over 3,000 hours of tactical jet time and, in some cases, several missions in space don't need to be reminded about procedures and safety. It's second nature to them by now.

Continued

Simple mistakes can be combated through a safety awareness program. NASA is developing a newsletter aimed at astronauts and contractors that will cover current safety issues. With astronauts constantly dealing with collateral duties and alternate tasking (sound familiar, shipmates?), an easy-to-read, informative publication should work well toward improving an astronaut's daily flying safety.

The astronauts are also given a semiannual instrument check. This flight is conducted "under the bag" and includes back-course ILS, ADB and VORTAC approaches to unfamiliar fields. A pre-check is flown prior to the check to work out the bugs that may have developed since the last check. In some cases, because of performance, more than one pre-check is given. Again, NASA is not the military. Their mission is space exploration, not national defense.

It was apparent that NASA was not the military while walking around the Johnson Space Center. The atmosphere was more like a college campus than a military facility. Uniforms were replaced by Izods and tennis shoes. At a glance, it seemed almost too laid back for the nature of NASA's mission. Why wasn't someone screaming for the instruction that said how something should be done? Where was the intensity you feel just walking into a fleet ready room? I discovered that a lack of the trappings of a military organization should not be interpreted as a lack of professionalism.

"We've taken the best the military has to offer," Capt. "Sonny" Carter, USN MC, explained. Capt. Carter's background included tours as a flight surgeon and Marine F-4 pilot. He also graduated from TPS before becoming an astronaut. He went on to say the apparent leniency in day-to-day conduct was a way of assessing a potential shuttle crew member's judgment. Once an individual makes it through the arduous selection process and begins astronaut training, it is up to him to prove he is not capable, rather than the other way around. It's just a little different from the mind-set in the Navy's training command or RAGs.

This is not to say that astronauts aren't subject to an occasional grilling at the hands of instructors. I was allowed to be the fourth member of the shuttle crew during an ascent trainer. LtCol. Ken Cameron, USMC, was the Shuttle Commander in the left front seat, and LtCol. Tom Henricks, USAF, was the pilot in the right front seat. Capt. Bill Shepherd, USN, former Navy SEAL and veteran of STS-27 acted as Mission Specialist.

The trainer has motion, and we were tilted up on our backs for the launch. The simulator began to shake, indicating we had left the pad. The ascent was hands-off, with the crew monitoring the computer-generated display that gave them systems status. The emergencies came fast and furious. The crew reacted quickly and calmly flipping through the PCLs that were attached with Velcro to the bulkheads in front of them. Each page of the PCL had a small piece of Velcro in the corner, which allowed the checklist to be read without holding on to it. The emergencies were generally not immediate action and allowed for some limited discussion among the crew. Because this was an ascent trainer, the run was stopped after we made it to MECO (main engine cut off) and began orbiting.

NASA

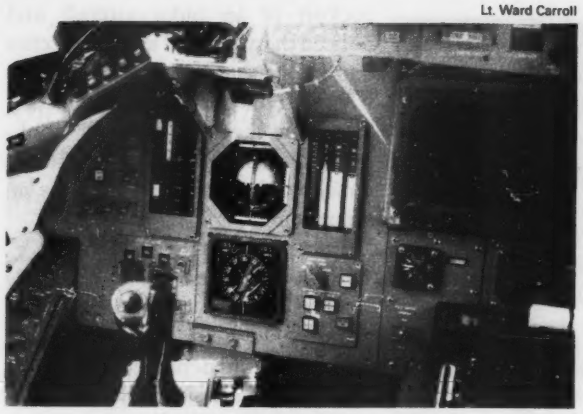
The STA practicing shuttle approaches over New Mexico.

Following the run, the crew was debriefed on their performance by several different instructors representing various portions of the shuttle (e.g., computers, systems, communications, etc.) Imagine if our trainers had separate instructors for hydraulics, avionics, flight controls and so on.

During the second ascent, we had a main engine failure prior to MECO and had to execute a RTLS (return to launch site). LtCol. Cameron jettisoned the main fuel tank and glided back to Cape Kennedy for landing. The simulator has full visual effects.

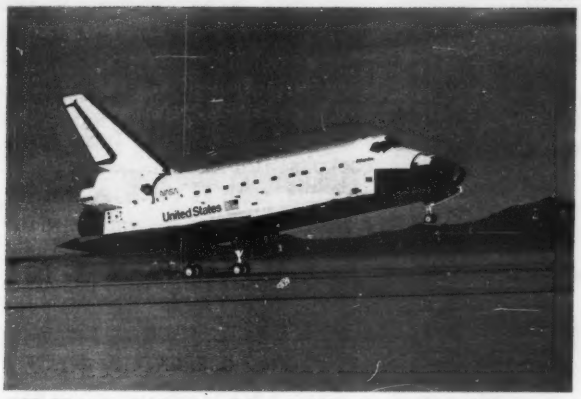
The simulator seemed realistic; however, the impact of screaming towards the ground at a 12,000-foot-per-minute rate of descent didn't hit me until I actually did it. I flew to El Paso to observe a landing exercise involving the shuttle training aircraft (STA). NASA uses a highly modified Gulfstream II (G-1159) to simulate the landing characteristics of the shuttle. The right front seat is a standard Gulfstream II while the left side is configured like the shuttle cockpit. When the shuttle mode is selected, the main gear drops, the ailerons

Lt. Ward Carroll



The left side of the STA's cockpit.

NASA



STS-27 "Atlantis" lands at Edwards AFB following their DOD mission.

deflect to 50 degrees up, and the engines go to thrust reverse.

The astronaut in the hot-seat the day I flew was Cdr. Frank Culbertson. We had been in the F-14 RAG at the same time when he was selected for the astronaut program back in 1984. Cdr. Culbertson is assigned to STS-38, scheduled to launch during the summer of 1990.

We launched out of El Paso and headed north to the warning areas near Holloman AFB in New Mexico. The practice field there was actually used for a shuttle recovery (STS-3) when the lake bed at Edwards AFB, Calif., flooded. We worked the area with one other STA, which reminded me of doing a two-plane strafe pattern.

We set up on downwind at 35,000 feet overhead the field. The STA followed a 19-degree glide path at 290 knots. The pattern puts you at 12,000 feet and seven miles on final. I peered over Cdr. Culbertson's shoulder. The sight picture looked to me as if we were 90 degrees nose low. In the shuttle the gear is armed at 3,000 feet by the pilot in the right seat and dropped on the Shuttle Commander's call (generally 300 feet). VSI at touchdown should be around 1.5 to 2.0 feet per second. The STA does not actually touch down. It simulates touchdown at 12 feet above the deck so that the sight picture is the same as from the shuttle.

I spoke with David Mumme, who runs the NASA operation in El Paso, about the STA training cycle. The frequency of STA hops is similar to bounce periods. As a launch date draws closer, a pilot receives more STA hops.

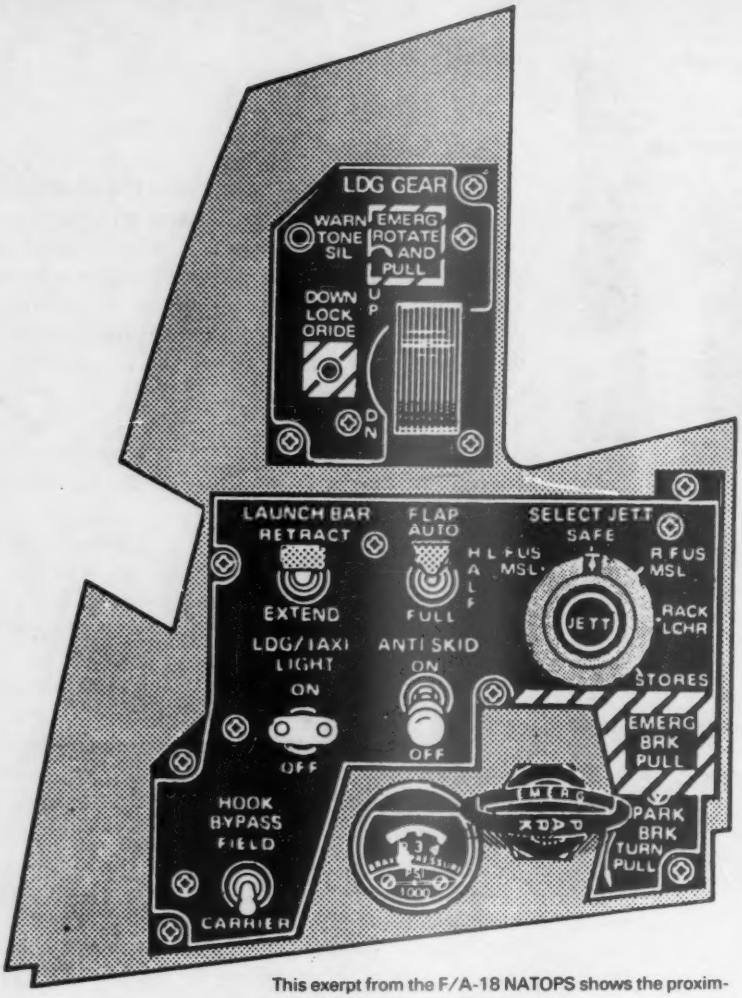
Proficiency is a concern following long missions in space. If a pilot is used to practicing daily and then doesn't fly for five days, his skill level has probably degraded somewhat. If the space station becomes a reality, the time between looks at the deck could be weeks or even months. As a result, NASA intends to put an approach simulator somewhere on the shuttle or the space station. While it probably won't have visual effects, it will allow pilots to stay familiar with HUD symbology and timing during the shuttle approach. For now though, new astronauts be advised: If you're on orbit and the senior guys tell you to go practice on the simulator, they're joking. ◄

I would like to thank the following people for their help during my visit: Jeff Carr (Public Affairs), Eileen Walsh (Photo Library), LCdr. Mike Baker (Mission Control), Bob Williams, A.J. Roy and Ace Beall (KC-135 Gods), John Starnes (Ellington Field Safety), David Mumme and Larry LaRose (STA Wizards), Bob Hile, Gene and everyone at the "Outpost" (refreshments) and, most importantly, my host and space mentor Capt. Bill Shepherd (Brownshoes inspiration and all-around trip coordination). — Ed.

1-800-HOT-SFTY

One line the professionals are talking about.

The Safety Center's hotline created to answer all your safety questions.



This exerpt from the F/A-18 NATOPS shows the proximity of the launch bar and flap switches.

Flippin' Switches

By Capt. Keith Esplen, CF, and Bud Baer

HAVE you ever jumped into the cockpit of an older aircraft and noticed the myriad of levers, switches and knobs that are scattered everywhere? You can't help but think, "How did those guys do it?" Looking at these cockpits now, it seems consideration for the pilot was an afterthought.

For example, the pilot of a CF-104 had a choice of four similar T-handles to pull. In the heat of the moment, he might have pulled the wrong one and deployed the ram air turbine instead of the landing gear. Cockpit design would be partially at fault, but the pilot would have to share the blame. He had a choice and made an error. Any aviator could probably make the same mistake.

When you compare these older cockpits to the state-of-the-art "glass" cockpits, such as the F/A-18s, it's obvious they were designed with the pilot in mind. Practically everything is at the pilot's fingertips, including the weapon system. Yet, even the newer birds aren't immune to switchology problems.

F/A-18 NATOPS states, "Failure to place the launch bar switch to retract (prior to a catapult launch) may result in hydraulic seal failure (after getting airborne)." During a normal Hornet launch sequence, the director gives the tension signal followed by the launch bar up signal before passing control to the shooter. This forces the pilot to go to military power, take his left hand off the throttle and select the "retract" position on the launch bar switch.

In one case, an F/A-18 was spotted on cat 4 for a day, Case I launch. With the Hornet in tension at MRT, the pilot made a critical mistake. He moved the flaps up instead of retracting the launch bar. Although shaped

. . . With the Hornet in tension at MRT, the pilot made a critical mistake. He moved the flaps up instead of retracting the launch bar . . .

differently, the switches are located adjacent to one another on the left canted console.

Fortunately, trouble-shooters on the deck and the Air Boss in PRIFLY saw the flaps moving up. They suspended the catapult. The pilot was immediately given the signal to raise his launch bar. If they hadn't noticed the flaps moving, the aircraft could have crashed into the sea.

"The Air Boss and the trouble-shooters knew exactly what to look for and prevented a mishap," the Commanding Officer said. "The aircraft as loaded would not have sustained flight with the flaps up. While there was no excuse for the pilot moving the wrong switch, a design flaw is partially at fault. A redesign is warranted to eliminate this severe hazard."

A hazard report on this incident noted that even though the switches have different shapes, the operation of the switch is identical. Other pilots have mistaken one switch for the other.

One endorser called for a review of the NATOPS requirement to move the launch bar switch to up position after the catapult goes into tension.

Another endorser, commenting on the practice of selecting the "retract" position of the launch bar prior to a cat shot, noted, "The hazards associated with an inadvertent flap retraction may outweigh any hazard from hydraulic seal failure."

Another endorser said that a "redesign or relocation is not warranted. Inadvertent raising of the flaps is a known problem that is extensively briefed during RAG and CQ evolutions."

So for now, the location of these switches will not be changed. Since it is a known hazard, the potential danger will continue to be emphasized to all Hornet drivers.

No matter what aircraft you fly, don't go just by instinct when flippin' switches. Look and positively identify the proper switch before you move it! ◄

Capt. Esplen, a Canadian Forces pilot, is an Exchange Officer serving as F/A-18 Analyst at the Naval Safety Center, Norfolk, Va.

Bud Baer is a staff writer for Approach magazine.

"I Can't Fly This Thing!"

By Lt. Garry Maynor

VP-22's Crew One began their initial descent to NAS Adak. The crew heard a Mayday on the approach control frequency, and they immediately notified Approach. They then called the aircraft in distress for its position, altitude and details of its emergency. The voice on the radio replied, "The pilot is slumped on the controls. He's had a heart attack. I can't fly this thing!"

The P-3 crew immediately broke off their approach and told Adak Approach Control that they were going to try to locate the aircraft in distress and try to help. The crew also asked Adak Approach to call NAS Adak and their squadron for a follow-on SAR launch.

The emergency aircraft was in level flight, but the pilot at the controls was confused by the aircraft instruments. The Navy crew knew they could not ask for specific information such as radial or DME since the pilot did not know how to respond.

Assisted by the second pilot, the TACCO began an ABC introduction to the instruments. The sensor operators, in-flight tech and ordnanceman began preparing a makeshift SAR package of life rafts, Imperial dry suits and LPP-1 preservers. The PPC and the flight engineers began calculating their endurance fuel limit and prepared for loiter shutdown of the No. 1 engine. At the time of the initial Mayday, the Orion had approximately one hour of fuel remaining before reaching minimum fuel. A recovery at Adak was now impossible, and the nearest alternate, King Salmon, was 800 miles to the east on the Alaska mainland. The crew had to figure maximum time on station and prepare Adak for SAR action.

The TACCO determined that the aircraft point of departure had been Dutch Harbor, and its destination was Atka Island, approximately 50 nm from the P-3's position. Using approximate airspeed predictions and the departure time from Dutch Harbor, the navigator developed an area of probability for the aircraft in distress, and the P-3 headed for the area.

As the Orion arrived at the area, the person on the unknown aircraft's radio said the pilot had regained consciousness and retaken control of the plane. It had been 30 minutes since the initial Mayday.

Further radio transmissions, however, indicated the pilot was not in complete control. The lat/long positions passed within minutes of each other were 200 nm apart, and altitude varied as much as 1,000 feet. The pilot's speech, though initially slurred, improved slowly. The P-3 crew offset his position by about 10 nm, cleared themselves of terrain, and descended for a visual contact. They remained five nm in trail because the aircraft was maneuvering erratically.

The Navy crew asked repeatedly to speak with the passengers, but the pilot refused. The last radio transmission from the plane in distress was a downwind call, and although the TACCO asked for a gear-down confirmation, he got no answer. The P-3 passed over the field to confirm the aircraft was safe on deck and contacted Atka Unicom. The P-3 began climbing, reported to Adak Approach and received clearance to King Salmon. The Orion landed two hours later with 600 pounds of fuel above minimum on-top requirements. The pilot of the unknown aircraft had suffered a stroke and was medevaced from Atka.

The Aleutians is not a forgiving area. Weather and sea conditions can be formidable and rescues difficult. The calm, timely reaction of Crew One may have helped keep the passengers from doing something disastrous. ◄

Lt. Maynor was the PPC of Crew One.

The Electric Jet Syndrome

By Col. David C. Corbett, USMC

MANY safety experts have said, "There are no new ways for Naval Aviators to have mishaps." Today, with the advent of our third-generation aircraft — both fixed- and rotary-wing — it may be time to reevaluate this philosophy. Perhaps we may be seeing the appearance of the Electric Jet Syndrome (EJS).

"Aviate, navigate, communicate" is the first phrase that a new flight student used to hear. Yet, because of the aircraft we fly today, there appears to be a new order of priorities: "Systems, aviate, navigate, communicate." This new order sometimes brings drastic results.

In one mishap, just after liftoff, a single-seater's automatic flap control failed. The pilot called his lead, reduced power and started to read his cockpit indicators to the flight lead. The aircraft crashed seconds later. Pilot error — he got "wrapped up" in trying to fix the *system* instead of flying the aircraft. It was a perfectly flyable jet, but the pilot focused on the systems.

Or, consider this story. The pilot was practicing Walleye attacks. This required viewing the digital display indicator in a head-down mode. Results: a midair collision, loss of one aircraft, one pilot and a severely damaged second jet. Not target fixation, *display* fixation.

A third example concerns night vision goggles (NVGs). The night was clear, and with this system the visibility was excellent. The two aircraft crews were properly briefed and were part of the same exercise. Yet, they ran into each other with catastrophic results, possibly because they relied too much on the system. NVGs are great but they are nothing more than a system, an aid for the pilot.

Is there a solution to the dilemma? I think there is, but you have to understand the problem. Today, meeting mission requirements demands an in-depth knowledge of every system in the plane. More and more information has to be put into, and then retrieved from, the new systems in today's aircraft, forcing commanders to pressure their pilots to know their aircraft systems cold. Are we doing this at the expense of making our young aviators forget they must fly the aircraft first, last and always? Too many mishaps in the past two years, Navy and Marine, suggest that is exactly what we are doing.

The solution — not an easy one to implement — is relatively simple. In the Training Command, FRSs and the fleet, commanding officers need to step back and evaluate just how well their pilots are doing. How well are they flying their aircraft? For the training command, it should be an everyday program, evaluating not just how well the student or refresher pilot is handling the systems and the mission, but also how well is he actually flying the bird. He should ensure that rote memorization of numbers, ranges, scope dope and emergency procedures are not considered the be-all and end-all for the Naval Aviator.

The most important thing in Naval Aviation is the coordination of stick and rudder, or collective and cyclic, and the human operator. Exploring the envelope is not a bad thing to do, and, in fact, it is vital that we encourage our pilots to do so (without pushing themselves over the limits of common sense and safety). I don't mean to say that we should push anyone beyond their limits, but rather we should want them to find out what those limits are and be comfortable with those capabilities. Nothing new, but are we *doing* that?

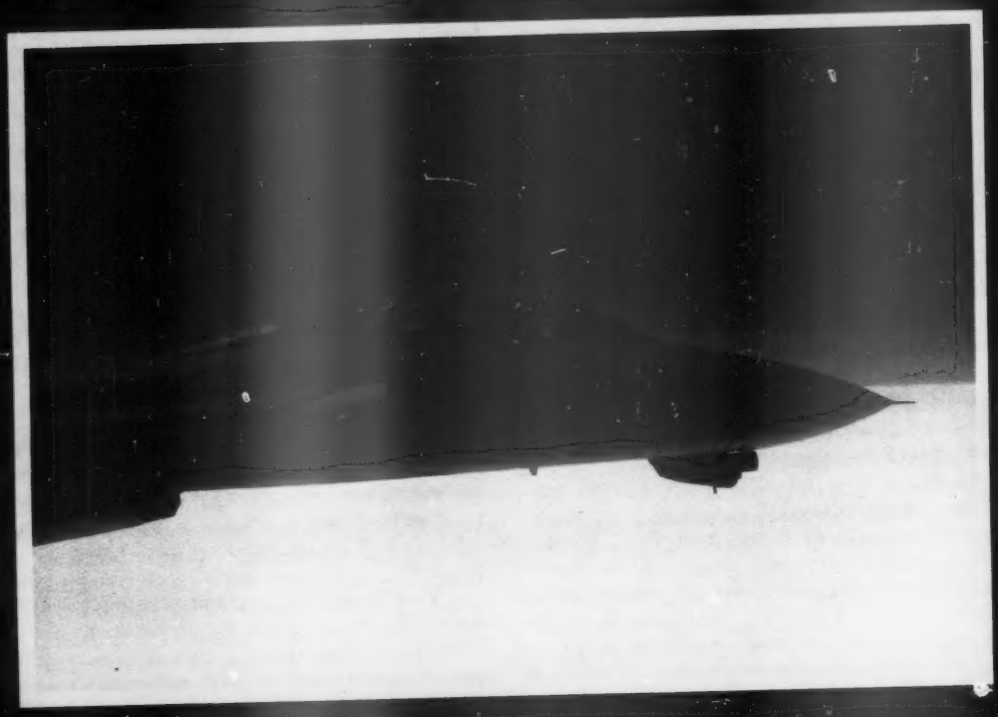
Electric Jet Syndrome, a new way to lose aircraft and kill pilots, is here. It must be recognized for what it is: a sign of the times, and a transitional period from analog to digital technology. The situation is not going to get better, unless we recognize that EJS is a problem and make sure we *never* lose sight of the basic premise that you have to fly the winged monster first. Everything else is secondary. ◄

Col. Corbett is the Director For Standardization and Safety for the 2D MAW. He flew F-8s at Khe Sanh with VMF(AW)-235, and AH-1J Seacobras with HMA-369 during the 1972 Easter Invasion. He commanded VMA-542, flying AV-8As, and MWSG-27.

Raise the Dead To Stay Alive:

A Discussion of F-14A Single-Engine Flight Technique

Story and photographs by LCdr. Bill Welch
Diagrams by Frank L. Smith



BECAUSE fighters are traditionally centerline-thrust aircraft, most newcomers to the F-14 community have trouble thinking of the Tomcat as a non-centerline-thrust, multiengine airframe. The engine thrust lines in the F-14 are 4.5 feet from the fuselage refererce line (FRL). While this may not seem significant, the high thrust of the engines makes up for the short moment arm. A TF-30 engine in full afterburner with a 4.5-foot moment arm produces the same asymmetry as the T-2's J-85 in military with a 25-foot moment arm.

The NATOPS manual adequately discusses single-engine emergency procedures in the takeoff, landing and waveoff phases, but what are the procedures for single-engine cruise flight? The proper method could come in handy if you are forced into the single-engine bingo box.

Assume you are doing CQs in the coastal op area when you successfully handle a starboard engine failure off the cat. The Boss gives you a steer for 150 nm, and your fuel state is 300 pounds above bingo. Not much gas to play with. As you transition to the bingo or climb schedules, what technique should you use to get the most miles per gallon? Bank five degrees into the good engine. The gouge is: Raise the dead (engine) to stay alive. Apply rudder as required into the good engine to center the yaw string. Gouge: live foot, live engine. Under no circumstances should you fly the aircraft by leveling the wings and centering the ball of the turn-and-slip indicator.

Suppose the F-14 is flown wings level with the ball centered, resulting in a sideslip condition with less lift, higher drag and higher thrust-fuel flow. The ball is only a marbie in a curved tube; it will only be a reliable indicator of slip when the thrust of both engines is matched. With one engine out, the only reliable slip indicator is the yaw string since it will always line up with the relative wind.

Figure 1a depicts the overall situation (note the yaw string's position). Let's break down the significant forces. First, we have the thrust force from the operating engine, and because this engine is not on the FRL, there is a torquing force around the center of gravity. In order to counter this torquing force, you must apply rudder to keep the aircraft from pinwheeling about the center of gravity. In addition to its torque moment, the rudder also pushes away from the good engine. The engine and rudder torquing forces cancel each other, leaving the thrust force that operates parallel to the FRL and the pushing force of the rudders. In Figure 1b, these residual forces are added vectorially resulting in a pointing to the right. Note that this action illustrates the aircraft's direction of flight and is, therefore, 180 degrees opposite to the relative wind.

Continued

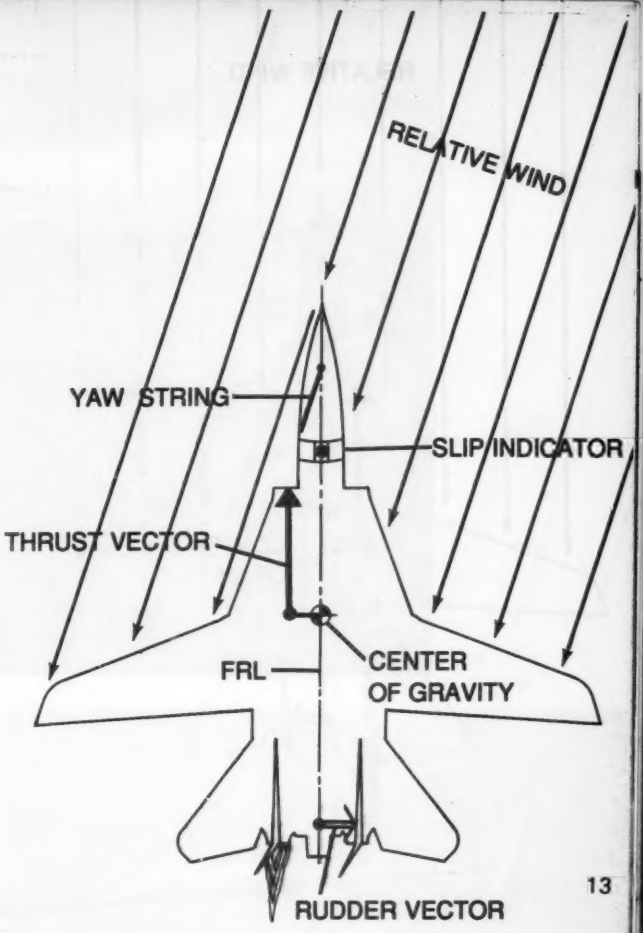


Figure 1a

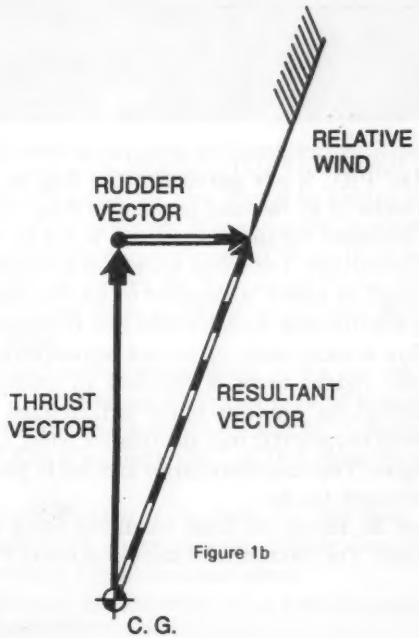


Figure 1b

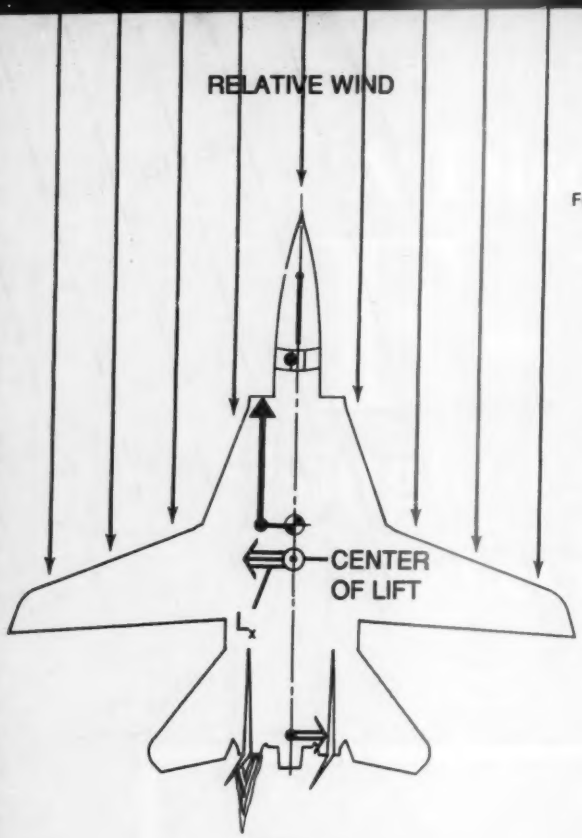


Figure 2a

Figure 2b

The inefficiencies should be apparent in these illustrations. The FRL is not parallel to the relative wind, which results in an increase in parasite drag. Induced drag is increased because the aircraft is not in a zero-sideslip condition. The wings are not as efficient, so a higher angle of attack is required to get the same lift. Rudder effectiveness is diminished due to blanking of the airflow to each rudder by its own vertical stab. Also, additional rudder force is required to counter the "weathercocking" tendency of the vertical stabs, which try to push the aircraft into the relative wind, i.e., the dead engine. You need more thrust and fuel to bludgeon the jet through the air.

Figure 2a depicts an ideal condition using proper procedures. The forces are the same as those in Figure 1

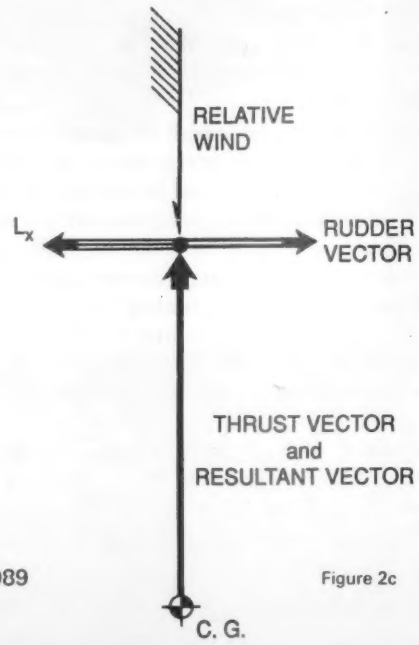


Figure 2c

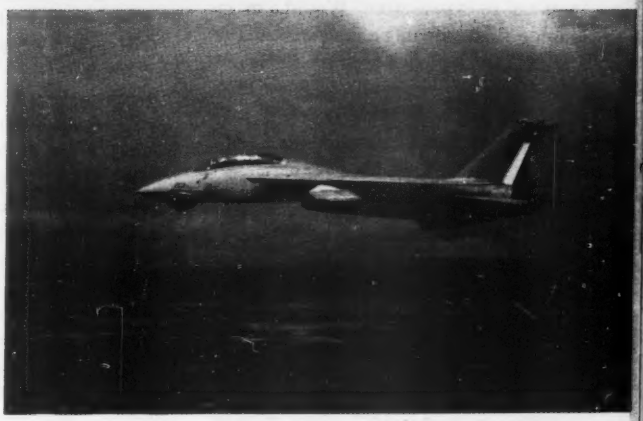
with the addition of a lateral component of the lift vector. When the aircraft is banked, the lift vector can be broken down into two components: vertical (L) and lateral (L) as shown in Figure 2b. L , acting at the center of lift, cancels out the lateral pushing force of the rudders, leaving the thrust vector of the operating engine as the major force.

Figure 2c illustrates the vector addition. We see that zero sideslip results because the only net force acting on the aircraft is parallel to the FRL, therefore, the FRL will be parallel to the relative wind. The zero sideslip condition is verified by the yaw string, which lines up with the FRL. The ball of the slip indicator will always be into the good engine when the proper technique is used.

During climb, expect the ball to be ½-1 full-width into the good engine with military thrust, and 1-ball width or greater for an afterburner climb. This could be handy gouge for a night single-engine bingo. The entire bingo profile should be flown using this technique to minimize drag and maximize fuel efficiency.

A word of caution to the "more is better" crowd: Going beyond five degrees angle-of-bank is not recommended for straight-and-level flight. The drag penalty from control deflection and the loss of lift from banking, increase significantly above this value, and efficiency drops off.

Single-engine flight in the F-14 is a hazardous but manageable task requiring immediate action by the aircrew, followed by sound airmanship for the rest of the flight. If you use boldface NATOPS for takeoff, landing and waveoff scenarios, you should be able to keep the aircraft safely airborne. When you are in cruise, bank five degrees into the good engine ("Raise the dead") and use rudder to center the yaw string ("Live foot, live engine"). Each aircrew should review these procedures before flight.



As noted author Barry Schiff wrote, for the unprepared ". . . the operative engine does little more than take them to the scene of the accident." ("Multiengine Advice You Can Bank On." *AOPA Pilot*, November 1981.) ◄

The author would like to thank Dr. Milt Bank, Structures Instructor, Aviation Safety Officer Course, NPS, for his expert suggestions and advice.

LCdr. Welch is a RIO with VF-202. He is a TAR and a graduate of the Aviation Safety Officer Course.

ANYMOUSE

Who's In Charge?

We were going on a pilot training flight. On board were an aircraft commander, two copilots and the enlisted crew. Part of the flight was to be low-level. The aircraft commander was planning to allow both copilots up front, occupying the left and right seats.

Our experienced flight engineer did not think this would be proper. He expressed his feelings to the aircraft commander, who decided not to conduct low-level training with both copilots in physical command of the aircraft.

Would the aircraft commander have changed his plan if the flight engineer was not so experienced? Would a more junior flight engineer have raised the point? Most enlisted crew members are not aware of command policy on such flights. (Why not? — Ed.)

Luckily, aircrews usually contain both less-experienced and more-experienced crew members. This practice could have saved our flight. If we had a mishap with two copilots at the controls, the first question would be, "Where was the aircraft commander?"

Aircrewmouse

• *Command policy on these flights needs to be disseminated to most junior enlisted. The NATOPS flight manual for the LC-130F/R aircraft says the minimum crew to fly the plane will be a pilot, copilot and flight engineer. When the pilot-in-command is not a designated aircraft commander, both the pilot and the copilot shall be at least designated T2Ps (total time, 700 hours; time in LC-130F/R, 200 hours). Additional crew members may be added, as required, at the discretion of the commander or as the mission dictates. — Ed.*

FOD in the Cockpit

Maintenance crews work hard to keep your aircraft up and flying, but some of our valuable time is being used looking for FOD in the cockpit.

Recently an anti-G suit quick-disconnect was missing from an ejection seat, and we spent the better part of the day searching the cockpit, only to find it was attached to a crew member's G-suit.

Last month when an aircrewman lost an eyepiece to his VCR camera, it took two days to locate it. Today, parts were missing from an aircrewman's helmet. Again people were hanging upside down in the cockpit trying to find them.

Every week it seems something from an aircrewman's gear is lost. Watches, pens, pencils, maps, papers, food, parts of kneeboards and loose change are the usual culprits. We as maintenance crews are required to empty our pockets before going on the line or flight deck.

Aircrews can help. When you start your flight brief, think about what might get lost inside the cockpit. Don't take items you don't need. Preflight and postflight your flight gear. Is it all there? When you are flying, keep track of your gear so you will know when something is missing.

FODmouse

SEAL Strike on a Hercules

On an exercise to NATO Training Base East, our C-130 was tasked with the aerial delivery of multiple static-line sticks for paratroops, both Marines and NATO allies. While making our first few runs over the drop zone target, I saw a CH-46 climbing through our drop altitude of 3,000 feet AGL.

After asking why, we were advised by the DZ Commander that this "frog" was cleared to conduct the HALO drop of a SEAL team from 10,000 feet AGL on the same target. After our aircraft commander "strongly requested" the radio frequency of the helo, we were told that the "frog" would call us to clear the area before dropping the SEAL team.

Warily, we continued our drop operations. Moments after receiving clearance from the DZ Commander for two more passes before the helo's HALO, we heard over the radio, "Jumpers in the area!" Immediately after aborting our pass and clearing the area, we saw several parachutes descending through our previous flight path. The SEALs had jumped at 7,000 feet AGL with no warning to us.

A bird strike on any aircraft can be bad. A SEAL strike could be much worse and very difficult to explain.

Closeshavemouse

Let Anymouse Know. We encourage you to write Anymouse whenever you see "a mishap about to happen." If you know of a hair-raising situation in the air or on the deck, let Anymouse know about it. You may help someone else avoid an unsafe incident.

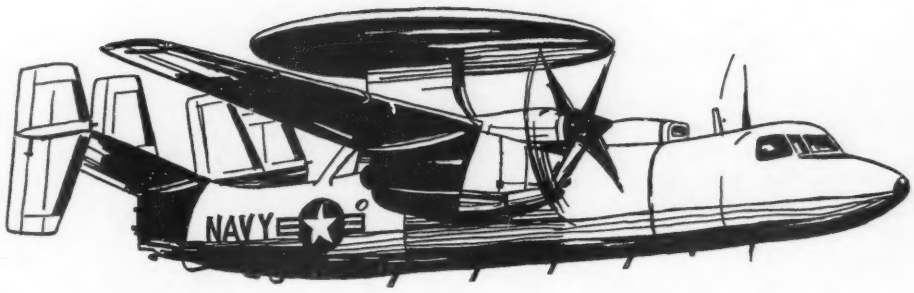
Anymouse is a unique department in Approach where no names are used. All information is anonymous. In fact, Anymouse was born three decades ago when someone couldn't spell "anonymous" and signed his letter "anymouse." Thus, a mouse wearing flight gear has become a worldwide naval aviation safety symbol.

Over the years we have found it is often more prudent and speedy to report unsafe situations anonymously. Keep in mind, though, that Anymouse is not interested in personality conflicts or non-constructive criticism of individuals. All views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

For your convenience, postpaid Anymouse mailing forms are available in most ready rooms and from most flight safety officers. Use of the form is not mandatory, though. Just jot down your thoughts and mail to Anymouse, Approach Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.

Decision to Divert

By Lt. Steve Squires



. . . The first time down the chute, we broke out lined-up left, in no position to land. It was a real milk bowl underneath the clouds, too . . .

IT was a hazy afternoon FCLP brief. We had three Hummers and were getting ready to bounce at NAS Miramar. As the day wore on, we found ourselves down to two and finally, one — ours.

As we manned up, the sea breeze brought the fog in 1,000 feet above the runway. No problem, except tower wouldn't allow FCLPs. We dropped back to Plan B, a flight to El Centro.

On the way to El Centro, one of the guys in back was listening to weather and approach at Miramar. We made one pass when tower said the weather was going down back home. We quickly landed, picked up paddles and began the dash back to Miramar.

We got over the mountains with plenty of gas. I gave my copilot my bad-weather brief and told him to have tower turn the strobes on bright.

The first time down the chute, we broke out lined-up left, in no position to land. It was a real milk bowl underneath the clouds, too.

The next time we were left again. Approach asked if we wanted to declare an emergency. We assured them that we still had enough gas, but we decided that it was time for a change.

Swallowing my pride, I swapped seats with the younger, more current pilot. We agreed that this was our trick-or-treat pass.

Soon we were on top of the strobes again, and we used them to line up with the runway centerline. As we broke out, I said, "Field in sight, 12 o'clock."

As the pilot transitioned to visual, we picked up that left drift again, and soon there was no runway centerline. I immediately called a wave-off. The pilot looked at me strangely but complied.

We diverted to North Island. From there, we hopped into a friend's car and were back at Miramar in time for an evening beer at the club.

The next day the skipper said, "You sounded tired when you reported diverting." I thought to myself, "You would be, too, if you had your ego busted twice in one night."

The first time was when I didn't land on the first approach. It was bruised again when we had to divert.

On the other hand, I had a good feeling about the flight. I didn't break the airplane, my crew was safe, and I tried everything I knew to get the airplane home safely. The proof that the divert wasn't a bad choice: no smoking hole at the end of the runway. ◄

Lt. Squires flies E-2Cs for VAW-114, NAS Miramar, Calif.

Air Show Gone Sour

By Lt. Stephen C. Kingston

. . . We tried an evasive maneuver to clear the fragmentation pattern. An explosive shock wave rocked the aircraft and blew out one of our windows . . .

IT was just another Coordinated Training Exercise (CTE), an air show for a dependents day cruise. The Letter of Instruction (LOI) had been on the street for weeks. The air wing was "red hot," having just completed a successful battle group phase. However, the weather wasn't ideal. Visibility was three to five miles in haze.

We launched our SH-3H at 0635 and flew to starboard delta to wait for the CTE to begin at 1030. As the starting time drew near, it was obvious that everyone wasn't up and ready. The signal was max conserve. After some minor adjustments to the CTE schedule, the start time was changed to 1050.

Our role in the CTE was to lay a line of smokes (four Mk 58 marine locator markers) on the port side, parallel to the ship at 6,000 yards to provide a foul line for the bombers. No ordnance was to be delivered inside that line.

At 1045, our push time, the tower couldn't clear us to start our event.

As the seconds ticked away, it was clear things were not going as planned. We were finally cleared to the port side of the ship, two minutes late. We dashed to the assigned drop point. As our helo arrived at the briefed location, the air show coordinator felt it would be better to place the smokes farther in front of the bow. This didn't appear to be a problem, and the events would go on as scheduled. After two quick 180-degree turns, our Sea King was in position to drop the smokes. All four were dropped on the 6,000-yard foul line.

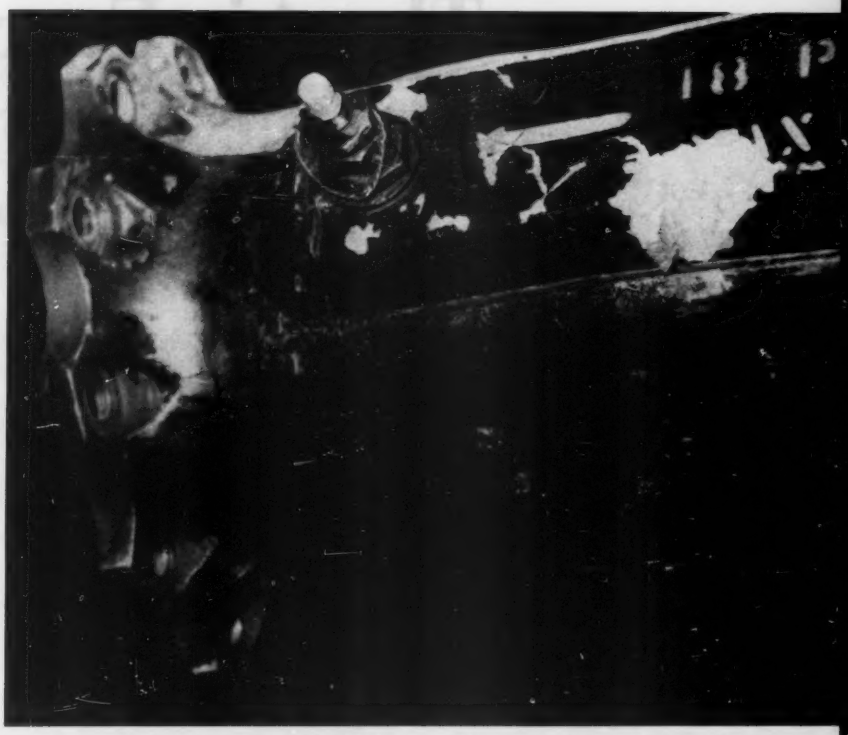
As we prepared to clear the area, an F-14 suddenly passed us at Mach .95, completing an event before a bombing run. As we turned toward the starboard delta pattern, an A-6 unloaded 10 Mk-82 500-pound bombs on top of us — well inside the foul line. We tried an evasive maneuver to clear the fragmentation pattern.

The explosion shock wave rocked our helo and blew off one of our windows. We learned later that a piece of shrapnel had torn a chunk out of one main rotor blade spar. We were lucky we didn't get blown out of the sky.

We learned some important lessons from this near-catastrophe:

- CTE participants should always follow the assigned brief, avoiding deviation from LOIs.
- When the air wing uses live ordnance, a qualified ordnance safety observer should be on the CTE team to insure that all hot areas are clear before crews deliver ordnance.
- Drop all ordnance outside the foul line.
- If the CTE coordinator feels that events are getting out of control, he should cancel them.
- A dry run of the CTE is important to get the timing worked out and clear up the grey areas. ◄

Lt. Kingston is with VT-3 at NAS Whiting Field, Fla. At the time of this incident, he was in HS-8.



The point where the rotor blade spar was damaged looks like chipped paint. In the close-up photo, it's clear that a sizeable chunk of metal had been torn out of the Sea King's spar.

The Air Force Joins the Navy — For a While

Capt. Bennie Umstead, USAF

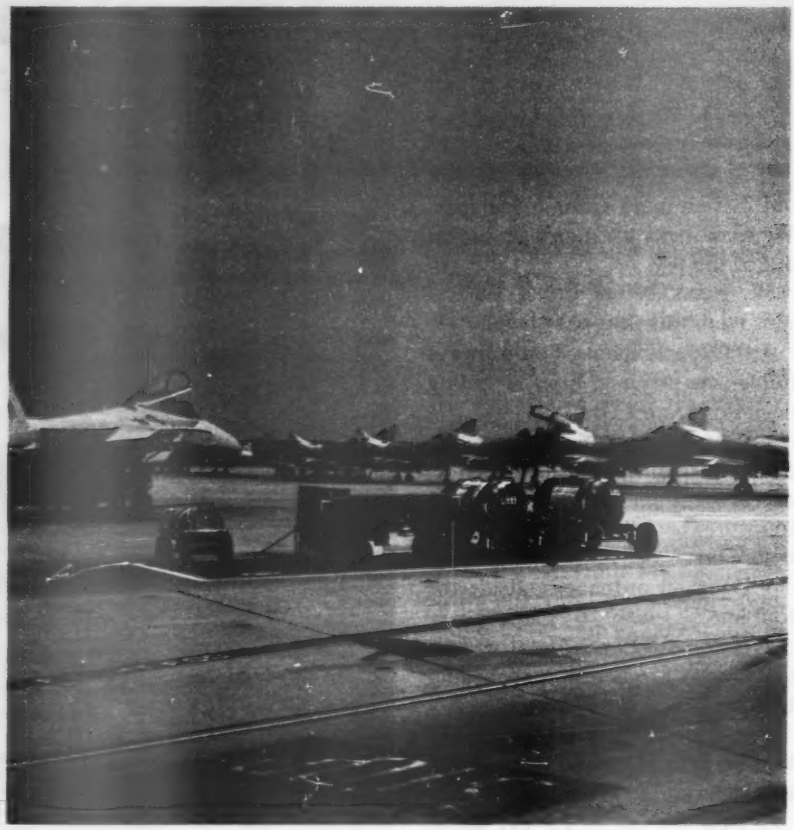
By Peter Mersky

Interservice coordination is a most important aspect of successful combat readiness. Opportunities to demonstrate cooperation between two services are eagerly sought. Recently, the 48th Fighter Interceptor Squadron (FIS) at Langley AFB asked if it could come to NAS Oceana while Langley's runways and taxiways were repaired over a two-month period.

THE 48th flies F-15A Eagles and is responsible for air defense of the Hampton Roads area. The Commanding Officer of the 48th, LtCol. George Booth, USAF, realized he would face extra operating expenses, increased response time, and the unattractive prospect of leaving families, if he had to deploy his squadron to a more distant base.

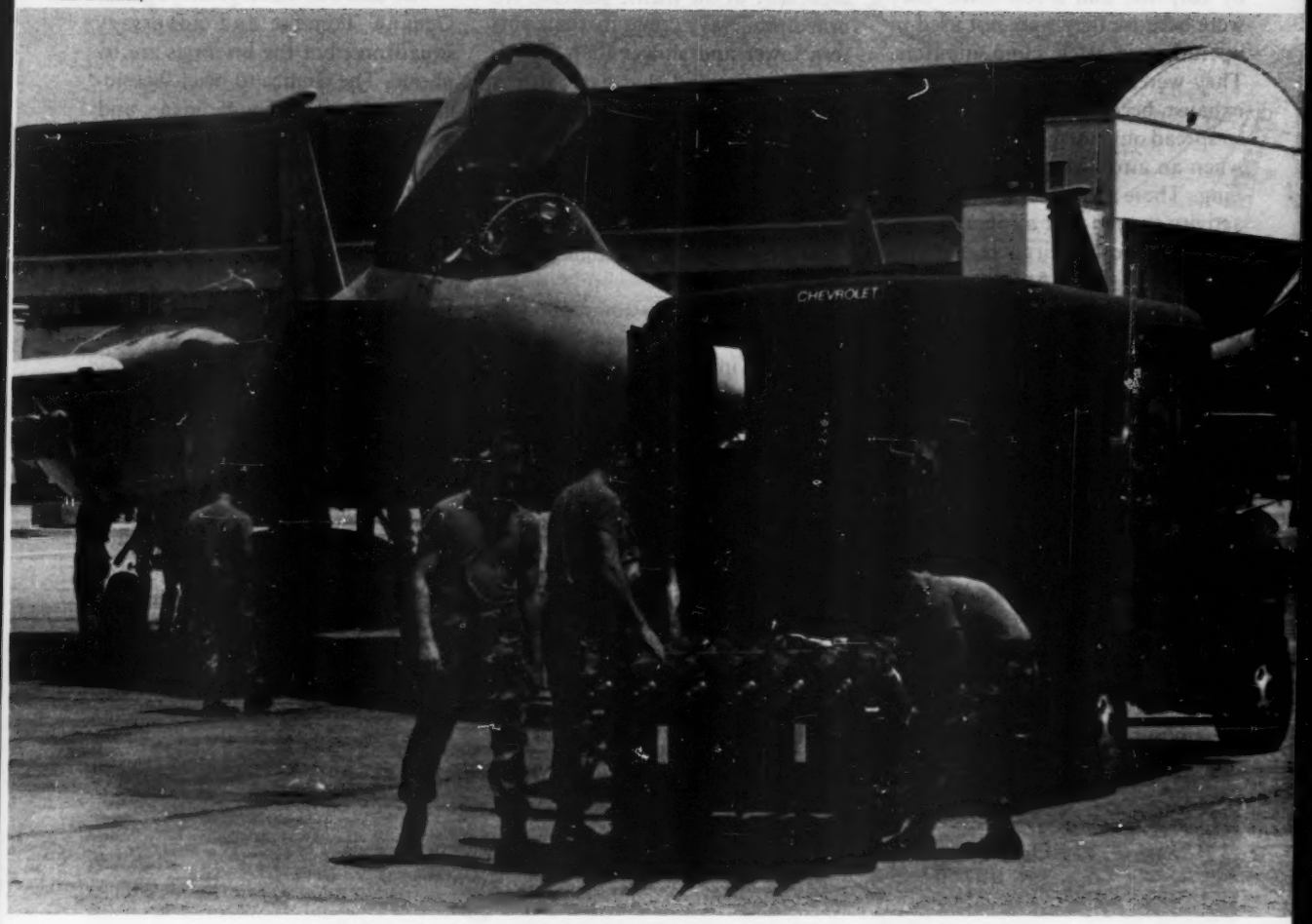
As a tenant squadron of Langley, the 48th FIS is more independent than a regular USAF tactical squadron and could, therefore, act more autonomously in requesting the Navy's assistance. When LtCol. Booth asked for help, NAS Oceana and the Navy said, "Sure, come on over."

The 48th set up shop on the Oceana flight line in early May of 1989 and quickly found things were going to be a little different at their Navy host's base. Squadron pilots had attended briefings before coming to Oceana to learn about operating from their new home.



Capt. Bennie Umstead, USAF

Peter B. Mersky



When the Air Force squadron first arrived at Oceana's Hangar 2, the members were surprised to see a collection of tightly corraled F-14s. The brand-new A(Plus)s were, according to LtCol. Booth, "separated by what must have been only a few paint molecules. My guys were awe-struck."

The Air Force uses its ramp space much differently than the Navy, whose carrier operations and restricted work spaces require more economic methods. LtCol. Booth commented on the Oceana flight line:

"Our safety rules require that any time *any part* of an aircraft taxis within 25 feet of anything else, we need a wing walker, and we're absolutely prohibited from taxiing within 10 feet of anything. I could tell the Navy had different rules as soon as I walked into the hangar and saw the way the aircraft were parked, nose to nose, like on a carrier.

The Air Force pilots now understand how active the warning area is off the Virginia coast. Operating from Langley AFB, the only information the 48th received was that the area was hot, but the crews never fully understood how hot, or why.

"We don't do that, and we're very conscious of separation and the possibility of someone making a mistake and dinging the airplane. Of course, the Navy is, too, but we don't park our planes that close. Oceana accommodated us by giving us an additional parking row, which allowed us to spread our aircraft out and comply with our rules.

"My biggest concern was that our flight line personnel would get caught

by surprise, and a few times they were because they were not used to operating in such close quarters. They weren't watching for aircraft exhaust, because our flight lines are so spread out, and it's fairly obvious when an aircraft's engines are running. There's a certain amount of activity around that airplane as opposed to another airplane not preparing for a flight. At Oceana, with the noise level, you can't always tell when an aircraft is turning, or taxiing out.

"We wanted to leave things laying around the flight line next to the aircraft, like we do at home, knowing that the aircraft we were working on would not cause a problem. But in these close quarters, a plane parked on another row could blow stuff away. We had to instill that awareness, to look around to see what's going on."

We asked about flying from a Navy base. LtCol. Booth said that pilot terminology differed somewhat, especially in the traffic pattern. He noted that Navy crews fly their pattern lower and slower than USAF F-15 drivers, and that can cause a traffic conflict.

"The F-14s descend and slow down," he said, "almost to approach speed while on downwind to have a very controlled base leg to get their final AOA and to establish their glide path.

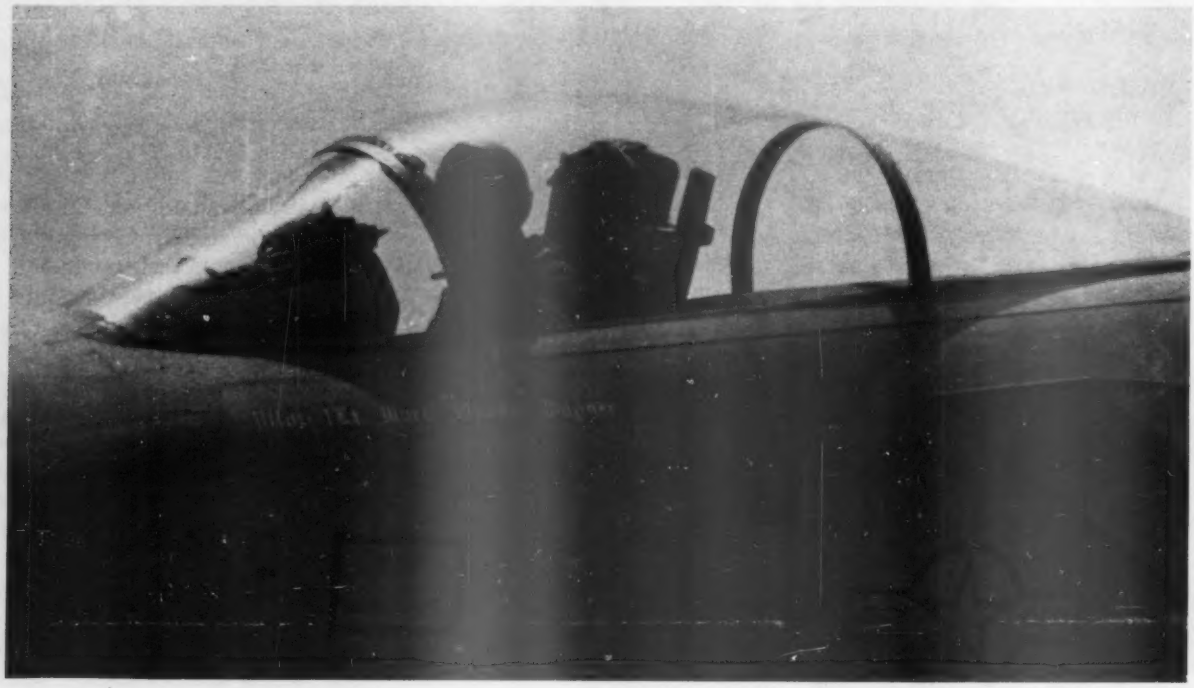
"We fly our F-15s about 500 feet higher, and we'll fly about 200 knots on downwind. We'll look for 175 knots about halfway through the base turn, and gradually get down to approach speed on final."

The Air Force pilots also now understand how active the warning area is off the Virginia coast. Operating from Langley, the only information the 48th received was that the area was hot, but the crews never fully understood *how* hot, or why. Now, after seeing missile shoots and gun-exes, they are more respectful.

The 48th FIS flies regularly against Oceana Tomcat and adversary squadrons, but the briefings are by phone. The chance to brief face-to-face and to exchange ideas and observations was unique.

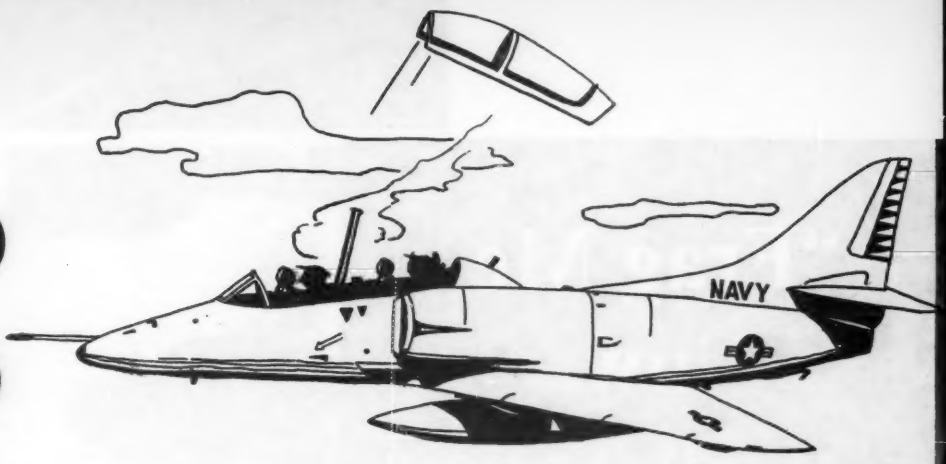
"We wanted to get as much dissimilar air combat training [DACT] as we could," LtCol. Booth said. "Normally, we review our tapes at home, and the Oceana folks look at their tapes at Oceana. It's not the same as doing it in the same room. The exchange of ideas is very important."

After nearly two months at Oceana, the 48th says it will return to Langley with a deep appreciation of Navy hospitality, as well as for their own more spacious flight line. But, LtCol. Booth concluded, "Because of the chance to talk with the people here at Oceana, face-to-face, we'll come out with a much better understanding of how the Navy works. The crossflow of tactics has been very beneficial." ◄



Peter B. Mersky

Pop Top



By LCdr. J. Duncan Cooper

THE PMCF was going well. The crew motored through their 10,000-foot and 20,000-foot checks with no problems. The Intruder looked like it was a full-up-round again. Then, without warning at FL 380, it happened: Their comfortable world turned to chaos with an ear-splitting bang! Charts blew around the cockpit. The B/N's nav bag floated in front of his face and disappeared. His radar hood flailed wildly, then shattered and departed. The canopy was gone.

The Naval Safety Center has received 89 reports of inadvertent canopy loss in flight in the last 12 years. No matter what type aircraft, if the canopy departs, you face many hazards.

Canopy rails are favorite armrests. Aircrew should think twice about cockpit lounging. The A-6's right seat and the T-2's back seat are notorious examples. Slipstream-induced flail injuries such as broken bones and dislocated shoulders can affect your ability to fly the aircraft or prevent you from ejecting. Many canopies have sharp projections such as mirrors and switches. Getting cut is a very real danger, another good reason to wear gloves.

Normal outside air temperature at 35,000 feet is -49 degrees F. Combined with a 150-knot wind blast, this temperature can freeze your flesh in seconds. *Stay behind your windscreen.* F-16N drivers with the new-style helmets, beware. Is your visor going to stay on, or will the windblast break the elastic retaining straps? Your instinctive reaction to dump your nose and descend must be tempered with the necessity of keeping your airspeed down. Slow descents take longer than you think.

Perhaps the greatest threat is inadvertent ejection. Every face-curtain-equipped ejection seat is subject to this hazard, especially back seats in a tandem-configured aircraft. You can minimize the risk by moving the seat to its lowest position. After the loss of the canopy, safing your seat depends on your particular aircraft. Airstream flail injuries are likely during the contortions necessary to safe the seat. If you're flying an aircraft with single controls . . . well, you get the picture.

Where did the lid go after it left the aircraft? Tail damage is a distinct possibility. Turning around in your seat to look may not be the best thing to do. A wingman's inspection may be preferable. The disturbed airflow over the tail, damaged or not, may cause decreased control effectiveness. Gear flying around open cockpits can go down intakes and FOD engines as well.

Communications is a difficult issue in tandem-configured aircraft. Side-by-side types can get by with hand signals. How would you know if your back-seater was hurt? At higher airspeeds, ICS is nearly useless, although UHF transmissions usually get out. As you slow down the ICS becomes more audible, and normal cockpit communication is possible. The EMER position on your IFF can say a lot, too.

Now that you've survived all the in-flight hazards, how are you going to get back on deck? If you're a long way from your destination, will you land short, perhaps at a field without UHF? Without communication and if your pubs blew out, how will you determine where the nearest runway is? Or its length? Do you need medical attention? If operating from a ship, will you trap or divert? What if you need to tank? The situation will dictate the answers to these questions.

Canopy loss is an emergency as old as canopies themselves. Combined with high speed and high altitudes, it is now a life or death matter. Aircrews must be prepared to act decisively to save their aircraft. ◄

LCdr. Cooper has 4,000 hours in various aircraft, including the SH-3 and A-6. He is currently VA-65's safety officer.

When the Weight

"Sir, you're out of trim."
"Huh?"
"That's it. You've got all there is. The trim indicator's all the way aft."
"Well, that clears up any doubt we had about our cargo weight."

THIS wasn't the first clue that our weight and balance was screwed up, but it was certainly the most conclusive. We were on a seven-mile final approach with 25 degrees of flaps and no trim left. The trim indicator wasn't just out of the green takeoff or landing area; it was nearly resting against the aft stop. If I selected 50 degrees of flaps — the normal landing configuration — and continued to decelerate, the aircraft would probably not be controllable during landing and a wave-off would be difficult. Extreme aft trim in a go-round situation could cause the nose to balloon excessively before we could reset the trim.

The day had started out badly. Four C-9s had descended on the mid-Atlantic NAS within 30 minutes. The terminal was small and not equipped to handle that many aircraft with passengers, baggage and cargo. Chaos reigned, though the terminal personnel did their best to cope with several hundred passengers, visitors, pilots, loadmasters and crew chiefs.

We couldn't find our cargo for our mission; the pallets weren't properly identified. Eventually, however, two of the other aircraft left, and the terminal was finally able to locate our cargo. Pallet No. 1 was tagged with a baggage tag as weighing 1,200 pounds. Pallet No. 2 was labeled as weighing 3,020 pounds, and pallet No. 3, 4,070 pounds. The straps on pallet No. 1 were not properly secured, and our loadmaster had to rework them.

Our aircraft configuration for this mission was three cargo pallets and 45 passengers and their baggage. We loaded the three pallets, with the lightest pallet placed the farthest forward. We took 39 passengers aboard and taxied 20 minutes later.

Our takeoff was routine except that I had to use more back pressure than normal at rotation to get the aircraft off the ground. The cause could have been an inaccurate weight-and-balance-trim calculation by the loadmaster. I asked him to go over his figures when we got to altitude. He checked and told me his original calculations were correct, based on the pallet weights the terminal had given him. He added that he now suspected the weight on the forward pallet was wrong.

Weight-and-balance calculations in any transport are critical. To determine where cargo, passengers and baggage go, the loadmaster has to know their weight. He then calculates the effect of placing that specific weight in a specific position. If the CG has shifted, he can determine the stabilizer trim setting needed to compensate. On the C-9B, both pilots review the weight-and-balance document before takeoff and set the stabilizer trim accordingly. When the load weight is accurate and the loadmaster's calculations correct, minimal force is needed to rotate the aircraft's nose off the deck.

Since we suspected that the weight of the No. 1 pallet was wrong — at this midway point of the flight, we thought the error was small — we called ahead to our destination via the HF phone patch, and asked them to stand by to weigh the three pallets. The rest of the flight went fine until we encountered the second trim problem on final.

"All right, we're out of trim," I said. "Something's

Doesn't Balance

By LCdr. Jerry Wilson

ter Mersky

really screwed up for the CG to be this far out of limits."

There are no procedures in the C-9B NATOPS that address landing with an extreme forward CG. Obviously, selecting 50 degrees of flaps for landing was out of the question since this would require more than we had available.

"We'll make a 25-degree flap landing," I said. "Bump the bug (the airspeed reference marker) 10 knots and select override on the GPWS (ground proximity warning system)."

Landing with 25 degrees of flaps would decrease the amount of nose-up trim needed and would give me more elevator control during the flare. We called three miles with the gear, received landing clearance, and double-checked the cockpit as we passed through 500 feet. Except for feeling a little "squirrely" around the pitch axis, the C-9 handled normally and the landing was uneventful.

As we taxied to the terminal, I called the loadmaster forward and pointed out the extreme-aft trim setting. Since he was not in the cockpit during the final approach, it was the first he had heard of it. His concern was evident as he went aft to prepare for the offload.

The NAS weighed all three pallets carefully for us. The forward pallet, tagged as weighing 1,200 pounds, actually weighed 3,429 pounds — almost *three* times the listed weight. The weight of the other two pallets was correct.

Now we knew the rest of the story. The nose-heavy takeoff, the extreme aft trim setting on final: We had too much weight, too far forward. Someone had jeopardized 39 shipmates by loading them aboard a Navy transport with an inaccurately-weighed pallet and sending them off to take their chances with the laws of physics.

What if? What if all three pallet weights had been off by that much? What if we had lost an engine? What if the approach had been IMC to minimums and the crew had missed the trim indicator's position?

The news reports might have said it this way.

"Navy officials confirmed late this afternoon that a C-9B aircraft crashed three miles short of Naval Air Station Southeast in a marshy area just off Route 64. Thirty-nine passengers and six crew members are known dead. Witnesses say that the aircraft exited the low overcast in an extreme nose-down attitude and exploded on impact."

Unfortunately, this is not an isolated incident. Since 1981 the Naval Safety Center has documented 58 instances of misweighed, or otherwise improperly designated, cargo. These were major incidents that generated hazard reports. Many similar problems were reported directly to the Navy Air Logistics Office (NALO) via LFR exception reports. I suspect that other incidents have gone unreported.

Bits from the Naval Safety Center files:

— "Cargo weight inaccurate causing performance limitations beyond C-9B single-engine performance capabilities." (May 1982)

— "The aircraft would have been over max takeoff gross weight by nearly 1 ton." (June 1982)

— "During the last two-week period, this command has experienced three incidents of improperly prepared or mishandled cargo." (Oct 1984)

— "Improper cargo weights of Lift A of NALO 446 resulted in a near mishap . . ." (April 1986)

— "Aircraft required excessive nose-up trim, yoke back pressure, and increased airspeed of 30 knots to become airborne." (Feb 1988)

There are others, and they go hand-in-hand with the sea stories that circulate around the C-9 community. The candid general consensus is that it will take a terrible disaster to solve the problem. I couldn't discover who misweighed the pallet on my aircraft.

There is a lack of standardization and control stemming from the autonomous operation of air terminals throughout the Navy. When a problem occurs, there is no central organization that can be held accountable. There is no corporate memory, so the same problems reoccur every year. There is no enforced standard of operation, so the rules constantly change. Each terminal is free to interpret and enforce NAVSUP 505 (the Hazardous Cargo Manual) as it sees fit. Outside intervention only happens after a serious incident like mine. What seems to be a simple cargo-handling problem is actually a management crisis of major proportions.

We should develop and implement a standard cargo weight form, which would list cargo, the date and time of weighing, the cargo's weight, how the weight was obtained, and the name and signature of the certifier. The form would be enclosed in a plastic protector attached to the pallet and would be the only acceptable documentation for transport.

There should be a security seal system for cargo pallets. Once the pallet has been loaded and the cargo straps secured, the seal — a wire or lead seal would work — would be attached at various points. When the load-

master picks up the cargo, he would check the weight form attached to the pallet and examine the seals for integrity. If the form is missing, or the seals are broken, the cargo would not be accepted for transport. (A special thanks to LCdr. Bill Eskridge, NAS Oceana's Assistant Air Operations Officer, for this idea.)

One possible solution to the management problem would involve significant organizational changes.

— All Navy terminals would be placed under the administrative control of a central authority or command. This command would be responsible for performance evaluation, procedural standardization and problem resolution.

Performance could be monitored through an annual inspection cycle and through close liaison with NALO.

Procedural standardization could be accomplished through instructions. Standard procedures take the guesswork out of packing, weighing and transporting cargo.

Problem resolution could be accomplished on a Navy-wide scale instead of locally. Safety Center Hazard Report files indicate that the same cargo problems occur repeatedly. A problem at one terminal pops up at another one six months later. A central command could deal with the entire terminal system instead of trying to solve each problem with each terminal, one at a time.

The terminals would benefit through the support of a central authority. Passengers and cargo customers would benefit through increased coordination. Aircrews would benefit from standardization and improved safety procedures.

The clock is ticking. With the present system, it's only a matter of time until another aircrew is ambushed by an overweight or mislabelled cargo pallet. ◄

The Navy Air Terminal Procedures Conference addressed many of the concerns expressed in LCdr. Wilson's article. The conference was held at NAS Norfolk, 21-22 September 1989. — Ed.

LCdr. Wilson is a C-9 pilot with VR-56. He was the squadron ASO and is currently the Maintenance Officer.

Leave It to Geezer

Old Guys

By Cdr. Pat O'Neil

I'VE survived five cruises, 4,000 hours, 700 traps, two RIMPACs, a couple of surges, and more than my share of in-flight emergencies. Through all that, I had never even stubbed my toe, until . . .

As I came off the flight deck, I debriefed the trouble-shooters on an aircraft-downing discrepancy. We went down the ladders from the island toward the ready room on the second deck. I had my helmet on. I always wear it going down ladders — well, almost always. With our headgear on, we couldn't hear each other, and as we descended the ladders, we took our helmets and crania off.

On the O-2 ladder, my right foot slipped on one of the rungs. My right hand was on the starboard chain for support, but was now too far behind me to help. Instinctively, I moved my left hand to grab the port chain, but my hand was holding my helmet, which was normally on my head. I grabbed for the overhead handhold with my right hand, but missed.

I was now coming down the ladder out of control, but the situation could still be saved. After all, senior aviators possess the agility of cats. Using my feline prowess, I leaped to clear the remaining rungs. It worked — almost. I landed on both feet at the bottom of the ladder. Things looked fine until the soles of my boots, slick with oil and hydraulic fluid, slipped.

The rest is a little hazy. The lights flickered, but didn't go out. Embarrassed, I got up quickly. After all, old guys with catlike agility aren't supposed to be laying at the bottom of a ladder in a heap. One of the trouble-shooters suggested I go to medical. I insisted I was OK. I was also thinking of the injury report and of the IMC announcement about ladder safety. The trouble-shooter said that if I was OK, I shouldn't have blood running down the back of my head. I went to medical.

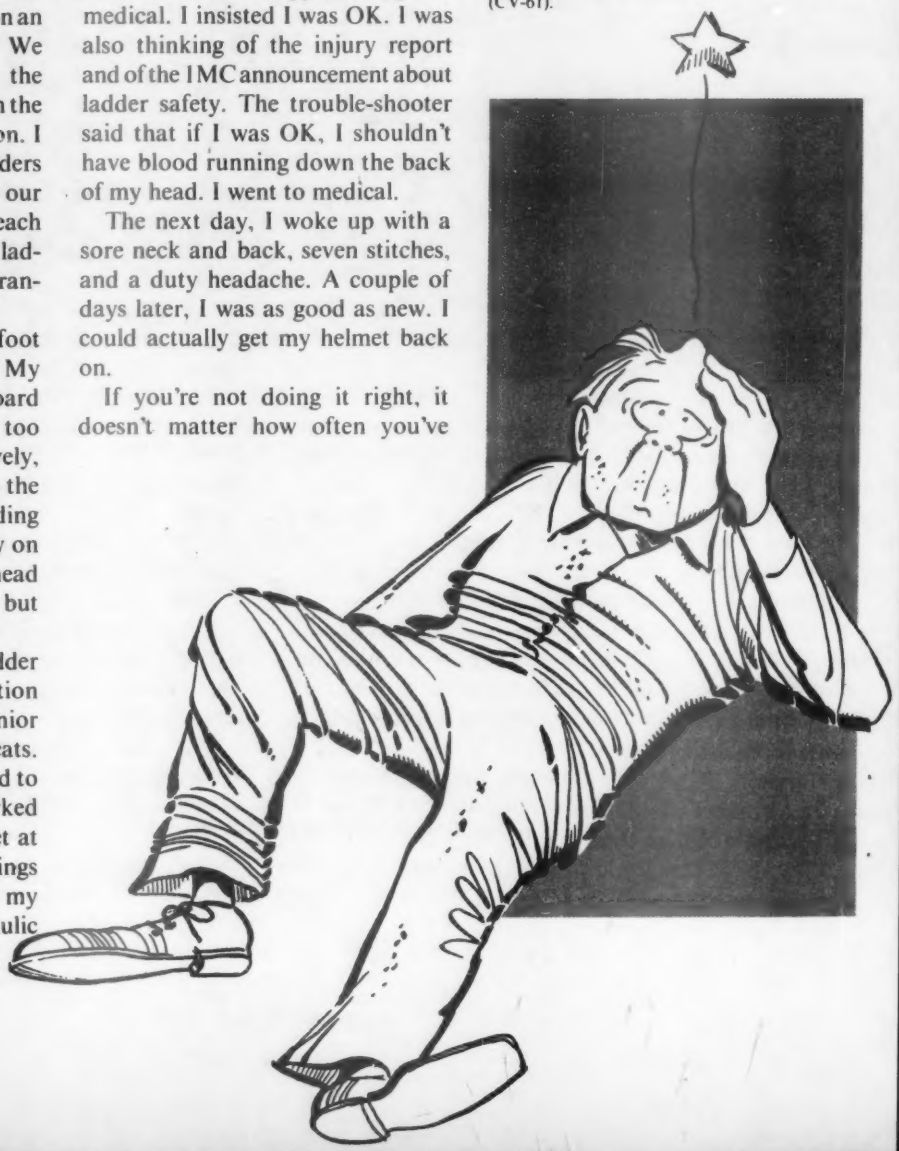
The next day, I woke up with a sore neck and back, seven stitches, and a duty headache. A couple of days later, I was as good as new. I could actually get my helmet back on.

If you're not doing it right, it doesn't matter how often you've been there. I broke an established habit pattern. I wasn't paying attention to the task at hand.

I got hurt, and it didn't happen in flight or around an aircraft where we aviators think it will. Fortunately, it was not as bad as it could have been. After a lot of embarrassment, a couple of days med down, and the dreaded IMC announcement on ladder safety by the captain, I was back in action.

Our chances of seriously injuring ourselves are still far greater on the ground than in the air. If you don't believe me, ask one of the old guys.

Cdr. O'Neil is an EA-6B pilot and the XO of VAQ-131, deploying with CVW-2 in USS *Ranger* (CV-61).



Two Wrongs Made a Right (THIS TIME)

By Lt. Robert L. Gross, Jr.

NATOPS manuals carry a statement about how information on aircraft systems and operating procedures is no substitute for sound judgement, especially regarding compound emergencies, adverse weather and available facilities. The statement provides aircraft commanders with the flexibility they need to safely operate their aircraft in changing conditions.

As a new functional check pilot in the SH-2F, on cruise in the Persian Gulf, I understood this provision much better after I had to go against established procedures during an emergency. This time, two wrongs made a right!

My post-phase functional check flight (FCF) was scheduled for completion before sunset. The check flight was uneventful, until the last check: No. 2 engine emergency rpm control check. The procedure called for manually increasing Ng to within 2 percent of engine-topping Ng value.

After reaching prescribed emergency rpm Ng and getting ready to report the FCF complete, I discovered that No. 2 engine's rpm control was stuck in emergency and that the rpm control switch would not decrease the engine power output. This situation caused an engine and main rotor overspeed when I reduced main rotor blade pitch. Going through emergency procedures for electrical overspeed did not reduce the power output, except for the last step, which was to secure the engine. At this time, I elected to use "sound judgement," although it was a departure from NATOPS.

The emergency started about 10 minutes before sunset. After intensive in-flight trouble-shooting with maintenance personnel and my OINC, the sun had been down for 45 minutes. I decided to make a single-engine profile landing. I was now flying with both engines on line, using the faulty engine to supply most of the power, with the good engine as a backup. With no alternate landing sites available, I was trying to avoid a single-engine landing at night to a single-spot ship.

The landing was uneventful, and I secured the No. 2 engine on touchdown. Postflight investigation revealed a stuck emergency rpm control switch at the high-power setting, which was caused by a broken microswitch. The closest NATOPS emergency procedure would have been electrical overspeed. By choosing not to secure the No. 2 engine, I ran the risk of having it fail or lose partial power during the approach, but I made it back. ◄

Lt. Gross flies with HSL-33.

Maj. M.C. Chisum, USMC
VMFA-333

As No. 4 in a division ACM hop, Maj. Chisum moved his F/A-18 into combat spread on his flight lead. As he performed his combat checklist, he felt a jolt and saw multiple warning and caution lights. The lights were a surprise since he hadn't heard the associated aural warnings. Maj. Chisum quickly throttled back and tried to call his flight lead, but neither of his two radios worked.

Maj. Chisum had left and right oil low pressure warnings, a flight control air data caution, and indications that his nosewheel steering had failed. The aircraft's fire extinguisher discharge light was also lit, and an initial check of the Hornet's flight control status display showed that channels 1 and 2 of the 4-channel, digital flight control system didn't work.

With several compound emergencies, Maj. Chisum's main concern was getting back on deck. He lowered the landing gear handle and felt the drag and noise associated with landing gear extension, but the position lights did not illuminate.

He activated the emergency gear extension system, and heard and felt the nose gear come down. He went to fixed-gains and half-flaps to comply with NATOPS. With no nosewheel steering, he had to make an arrested landing.

The Hornet was too heavy for a safe arrestment, and Maj. Chisum tried to dump fuel. He found the fuel dump system didn't work. He was concerned about engine-oil starvation and seizure of one or both engines. He was also uncertain about his landing gear's position, so he performed a quick controllability check and started his approach. He had selected 7700 on his IFF, but when an A-6 cut in front of him during his approach, he realized that the transponder did not work either.

Maj. Chisum rocked his wings as he flew past the tower, then turned downwind to start another approach. On short final, both engine flame-out caution lights illuminated, but both engines continued to run. Maj. Chisum made a fly-in arrestment. His aircraft's gear was down and locked, and there was no further damage to his aircraft.

An extensive postflight inspection revealed that two contacts in an electromagnetic relay to the utility battery caused a failure of the essential DC power bus.

BRAVO ZULU

Lt. Dave Burg
Lt. Jack Leanhart
AMS1 Kevin Boseman
AD1 Stephen Krochmalick
HM2 Jorge Minana
HC-16

In response to a request from the USCG Rescue Coordination Center at New Orleans, Lt. Burg (HAC), Lt. Leanhart (copilot) and their SAR crew launched in the SH-3D at 1845. A civilian fishing boat had run aground 110 nm east of Pensacola. As a Coast Guard Falcon jet gave overhead assistance, the SAR helo arrived over the stricken boat at 2020. The boat was aground, had lost all power, and was listing 45 degrees in 10-foot seas. The only visual reference the two helo pilots had were the hand-held flashlights of the civilian crew.

Three survivors were clinging to the port walkway of the fishing boat. The helo crew dropped a Mk. 25 smoke and made a coupled approach. Lt. Burg secured the doppler and used the aircraft search and flood hover lights to maintain a visual hover.

The boat was now awash, and the masts and antenna prevented the helo pilots from placing a swimmer on the boat. AD1 Krochmalick (rescue swimmer) jumped into the water to swim to the boat. After several attempts, he succeeded in contacting his aircraft with his PRC-90. He told Lt. Burg that numerous sharks were close to the boat. Lt. Burg tried to hover over the fishing boat's bow but lost visual reference during the first hoist evolution. After several severe cable oscillations, the SAR crew recovered the first survivor at 2055.

On the second hoist, the cable fouled in the boat's rigging. AMS1 Boseman (crew chief) and HM2 Minana (SAR corpsman) struggled for 15 minutes before they freed the cable. The crew then lowered a raft to the boat to recover the remaining two survivors and AD1 Krochmalick.

At 2130, the survivors and AD1 Krochmalick were safely aboard the raft, but the heavy seas threatened to overturn it. Battling 25-30-knot winds, with no visual reference on the surface, the aircrew tried to maintain position over the raft. With his aircraft getting low on fuel, Lt. Burg and his crew finally recovered the three men at 2150. They had spent nearly 90 minutes in a manual hover at night.

From left to right:
AMS1 Kevin Boseman,
HM2 Jorge Minana,
AD1 Stephen Krochmalick
Lt. Dave Burg,
Lt. Jack Leanhart

Left to right:
Lt. Timothy C. Pedersen,
Lt. David R. Lee,
AW2 Christopher D. Langley

Lt. David A. Lee
Lt. Timothy C. Pedersen
AW2 Christopher D. Langley
HSL-34

After returning from a night SSSC mission in the southern Persian Gulf, the SH-2F circled overhead while the ship cleared the flight deck of another aircraft that was unable to take off. The Sea Sprite pitched up and rolled 30 degrees to the left. After he leveled off, Lt. Lee examined his instruments for the cause of the sudden, uncommanded maneuver. Another set of "kicks" went through the controls.

Both pilots saw the hydraulic caution light illuminate, and they cross-checked the hydraulic pressure gauge, which now read zero. Lt. Pedersen pulled out his NATOPS PCL and reviewed the required items with Lt. Lee. After they secured the hydraulic system, all the crew could do was wait for the flight deck to be cleared.

Fuel became a concern, and the ship was unable to get the SGLI working. AW2 Langley directed the helicopter to a 1.5-mile initial, giving ranges every ⅛-mile. Lt. Pedersen monitored altitude and airspeed, as Lt. Lee flew a left-seat night boost-off approach.

Postflight inspection revealed the return line from the hydraulic pump to the reservoir had ruptured, allowing most of the hydraulic fluid to escape.

Shooting a boost-off approach to the helo pad is not an easy task. To successfully complete one at night, on the back of a pitching and rolling deck deserves a BZ. — Lt. Scott Campbell, H-2 analyst, Naval Safety Center.

Cdr. Frank Sweigart
Lt. Jeffrey Stillwagon
VA-155

After completing a visual low level, Cdr. Sweigart (B/N) and Lt. Stillwagon (pilot) entered the Boardman Target complex. At a speed of over 480 knots, their A-6E struck at least three Canada geese. One engine seized, followed by partial turbine disintegration, DRS implosion and structural damage to the starboard intake, station 4 pylon and drop-tank, and the starboard leading edge slat.

While maintaining control of their crippled aircraft, the crew assessed the severity of the situation, immediately secured the failed engine, and headed toward a nearby civilian field where they made a single-engine landing.

Their prompt response to the emergency minimized damage caused by the turbine blades perforating the compressor casing. ◄

From left to right: Lt. Jeffrey Stillwagon, Cdr. Frank Sweigart

Stealth S-3

By Lt. John A. Bullock

NIGHT EMCON can strike fear into the hearts of even the most seasoned naval aviators. You may have to fly on a dark night without a TACAN, depending entirely on the INS for navigation. You have limited control and radio communications. These demands can result in confusing situations. Normal night flying isn't fun; night EMCON is like practicing bleeding.

When you are flying night EMCON under VMC, "see and avoid" depends on a full set of working lights. These lights can make the difference between a mishap and an uneventful landing.

I launched in the early evening for a double-cycle ASW hop in support of the battle group during a NATO exercise in the North Atlantic. My COTAC was relatively new and had only checked in the previous month. After three hours of searching our assigned box, it was time to go home. After we reported off-station I began the approach checklist.

It was getting dark, so I turned on the exterior light master switch. I usually set up the exterior light configuration on preflight and use the exterior light master switch to control the lights. This method allows quick use of the lights, if required, for a brake failure on deck. I remembered that I had properly configured my external lights during preflight, but, unfortunately, I didn't recheck the light panel. I assumed that my COTAC would make sure the lights were still properly configured.

The first portion of the EMCON recovery went well. I had no trouble finding the ship, breaking on my interval, or getting established on centerline in order to get a good start. Imagine my surprise when the LSO called, "Wave off for lights." Let's see, good indexers in the cockpit, all three down and locked, and no unusual launch bar indications; so I *assumed* that I had a burned-out approach light and the LSO wanted to visually confirm three down. I wondered why they hadn't asked me to show a "fast" or "slow" to get an AOA indexer. At any rate, I found my interval and turned downwind.

Normal night EMCON recovery procedures call for continuing one minute past the abeam position before turning inbound. The pattern was strung out, so I turned to the final bearing well after one minute, following my interval. I rolled out on the final bearing and was cut out of the pattern by an A-7. I *assumed* that he had turned at the normal one-minute turnpoint, and he wasn't looking for an aircraft on a 5-nm final. I sequenced in behind the A-7 and managed to create some separation, but not enough to avoid a foul deck wave-off.

On my third lap around the pattern, I followed my interval and set up once again on the final bearing with little difficulty. At approximately 1.5 nm, I picked up a ball and began to concentrate on my pass. Luckily, I was low and lined up left. At 1 nm, I saw an F-14 in my peripheral vision 100 feet above and to the right of my aircraft. I immediately took my own wave-off as the LSO simultaneously called for a wave-off. The F-14 crew never saw me. At this point, I remember commenting that everyone was trying to cut us out of the pattern.

As I approached the start of my fourth pass, the LSO requested that I have my "B/N" — my COTAC — hold up a flashlight in the windshield, a trick we used on the platform when waving an A-6 that had no exterior lights because of a generator failure. Obviously, none of my external lights were on.

I checked that my master light switch was on and looked across the cockpit to check the exterior light panel. I was horrified to discover that all the external lights were off. My COTAC had turned them off earlier in the flight because it was still daylight, and I failed to recheck the panel during the approach checks. I reconfigured the exterior light panel and landed on my fourth pass.

I'm still embarrassed about the mistakes and assumptions my COTAC and I made on this flight. The story still comes up on the platform about the S-3 flashlight-exterior-light interconnect. The scariest thought is that I almost had a midair — not once, but twice — because I did not have my lights on. The LSO made several "check your lights" calls that I never heard.

The situation could have been avoided with better crew coordination and by strictly following the checklist. In order to prevent the problem from happening again, I now keep both anticollision lights on until I'm established on final before I secure the bottom rotator, and turn up my strip lights. And I *always* check my exterior light configuration during the approach checklist.

Night EMCON is arduous and demanding and requires constant training. The potential for a mishap is greatly increased because some of the most basic safety tools aren't used. Lights are one of the tools we do use. CV NATOPS says that while conducting night EMCON operations, "All aircraft will have lights on bright and steady with anti-collision lights on." ◄

Lt. Bullock flies S-3s with VS-28. He is the squadron Pilot NATOPS Officer and the Senior Squadron LSO.

Nosey Is Safer

By Lt. Andy McCawley

MY wife keeps telling me I am nosey because I am always commenting on what our neighbors are doing. She can't believe I notice the normal routine of the people who live around me, and any departures from that routine. I'm not nosey, I tell her, just observant.

I felt somewhat guilty about her accusation until an incident occurred that redeemed my character and let me attribute my actions to my Naval Aviation training and experience.

I launched in a TA-7C on a routine parts-support flight from Patuxent. I had an experienced A-6 B/N in the back seat; we had to deliver a crucial part for shipboard testing. The large computer terminal was loaded into our blivet — and we made the delivery.

After unloading the terminal and refastening the access panel on the blivet, I noted with dismay that the transient line crew had opened just about every panel on the aircraft in search of parts. It took 10 minutes and a screwdriver to ensure the Corsair was buttoned up before we started the engine.

Once satisfied the aircraft was secure, we saddled up. Post-start checks were completed and we taxied out for the return flight. As we approached the hold-short area, Ground came up and told us that a passing truck had reported what looked like an open door on the right side of our aircraft. The crew of an E-2 in the hold-short area confirmed that the starting air door on the aft side of the fuselage was, indeed, open. We taxied back to the transient line, secured the door, got a thorough (if somewhat late) final check by the line crew, and taxied back to the runway.

At this point, I am sure you are wondering what this has to do with my spying on my neighbors. Initially, I had wondered why someone was looking at my airplane closely enough to spot an open door. Then, I realized he was being just what my wife had classified as "nosey." They were observing normal flight operations and consciously, or unconsciously, were looking for things that were *not* normal. Even if they didn't know exactly what the huffer door was, they recognized that it probably shouldn't be open while an aircraft was taxiing for takeoff.

For me, the incident illustrated the importance of maintaining a heads-up attitude whenever you are involved in any aspect of aviation. The consequences of not catching the open door would have probably been a TFOA incident. A good save, indeed, but even more dramatic saves happen. You can read about them in *Approach* every month. Flight-deck personnel spot a trace of hydraulic fluid before an aircraft launches, and thereby prevent a massive failure. Sailors frequently save shipmates from being sucked into air intakes or being blown overboard. A nosey — or observant — attitude is a healthy approach to doing business.

There are dedicated safety observers and final checkers, but their presence does not relieve the rest of us from the responsibility for safety. Hazards are everywhere, and you need to be looking for them all the time.

If something doesn't look right, it probably isn't, so, speak up. Someone may accuse you of being nosey, but so what. You might prevent a mishap or save a life, possibly your own! I like flying around a lot of nosey people.

It's safer. ◄

Lt. McCawley is an A-7 and F/A-18 pilot assigned to the Strike Aircraft Test Directorate at NAS Patuxent. He graduated from TPS in 1988, and is currently testing ordnance on the Hornet and Corsair.

An "E" Ticket Ride

By Lt. Kevin Hogan

OUR mission was to fly our SH-3G Sea King on a log run to an island. Then we were to stand by to pick up a Mk-30 torpedo at the end of the underwater range exercise. The flight was to last 3.5 hours.

We readily completed the log run part of the morning's event. The most exciting occurrence was watching a whale and her calf swimming in the clear waters of the Caribbean.

Back at our base, we had just completed hooking the Mk-30 cage to our helo when we heard the underwater range controller say that the torpedo recovery time was pushed back half an hour. We had plenty of gas, though, for the second half of the day's event. We launched for the Mk-30 recovery and loitered outside the range boundaries — a good reason for flying up and down the coastline beaches of St. Croix. Once cleared in by range control for the pickup, things became more complicated. The sea state worsened, which made the recovery cycle more difficult. It wasn't until our sixth attempt that we succeeded to seat the torpedo properly in the cage. We felt relieved when we heard the call over the ICS, "Torp seated, cleared to come up."

"Torp clear of the water, ready for forward flight," the first crewman in the aft station said.

Even with the delay and our transit time of 45 minutes, we had plenty of flight time left to get home. Ten minutes out, near the island of Vieques, we felt a slight thump in the cockpit and a corresponding yaw kick in the automatic stabilization equipment. The yaw was mild, but enough to get our attention especially since we were carrying a 3,000-pound external load.

The copilot and I quickly scanned the cockpit to determine why the helicopter was acting up. There were no other abnormal indications, so we pressed on. It was fairly common to hit a burble or two when crossing Mount Pirata near Vieques. We thought this caused the odd aircraft movements. We had the field boundary made and the Mk-30 landing pad in sight. Another five minutes and we'd be filling out yellow sheets.

After completing the landing checklists and passing verbal control to the first crewman, we set the nose attitude for a slow deceleration: 300 feet and 60 knots, 250 feet and 50 knots, 200 feet and 40 knots, 150 feet and 30 knots.

Passing 110 feet, we were startled to hear a loud, shrieking noise. The piercing sound lasted only two or three seconds and resembled the grinding sound of metal caused by a fast-moving locomotive that applied its brakes for an emergency stop.

We were spinning to the right and made a 360-degree turn. The nose then made a hard tuck downward. We had lost our tail rotor! Pulling back on the cyclic, I did everything I could to get a straight-and-level attitude. I instinctively lowered the collective to stop the rate of right yaw.

My copilot finally managed to fight off the G-load that had initially pinned his upper body against his sliding window. He reached up to adjust the speed selectors. By now we had already completed our second 360-degree turn, and I had enough control of the Sea King to pickle the torpedo. Our helo passed through 270 degrees of our third turn when the rate of right yaw finally diminished, and our corrective actions started to bring the helicopter's nose back to the left ever so slightly.

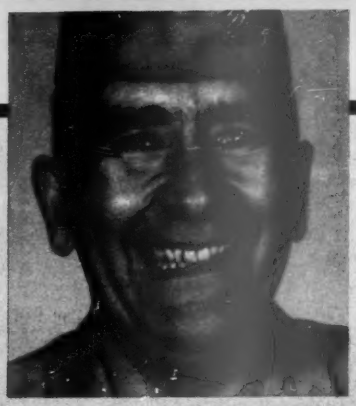
. . . We were spinning to the right and made a 360-degree turn. The nose then made a hard tuck downward. We had lost our tail rotor! . . .

This incident occurred in only 10 seconds at just 110 feet off the ground. Now we were confronted with another problem, trying to find a place to land. Our view was restricted by a grove of mango trees. The ride wasn't over yet.

Our SH-3G's fuselage had practically come to a complete stop, but the rotor blades were still moving. As the first blade struck a tree, the helo jolted 10 feet sideways. The second blade followed, and again we experienced some violent motion. Finally we were safe on the ground after chopping down a few mango trees and damaging our rotor blades.

Although our ride resembled an attraction at an amusement park, our predicament wasn't amusing. Had it not been for proper crew coordination and adherence to NATOPS procedures, we might not have made it on this "E" ticket ride. ◄

Lt. Hogan is the NATOPS Officer for HS-8, an H-3 squadron based at NAS North Island, San Diego, Calif.



The Cruise Doesn't End Before the Flyoff

By LCdr. J.E. Nortz

"SAFETY is paramount! No one will take a down aircraft. If you have a problem on turn-up, get it fixed, then follow us on the next launch." That is how the Skipper began the brief for my first air wing flyoff. We'd been on deployment to the Western Pacific for nearly eight months. As a brand new j.g., I felt his words were chiseled in stone. I'll never forget how surprised I was 45 minutes later when, sitting in my turning jet, the Ops Officer turned to me and gave me a sheepish grin as our mighty A-6 was *towed* up to the catapult. No nosewheel steering is a downing discrepancy at any other time, but, after all, this was *the flyoff.*

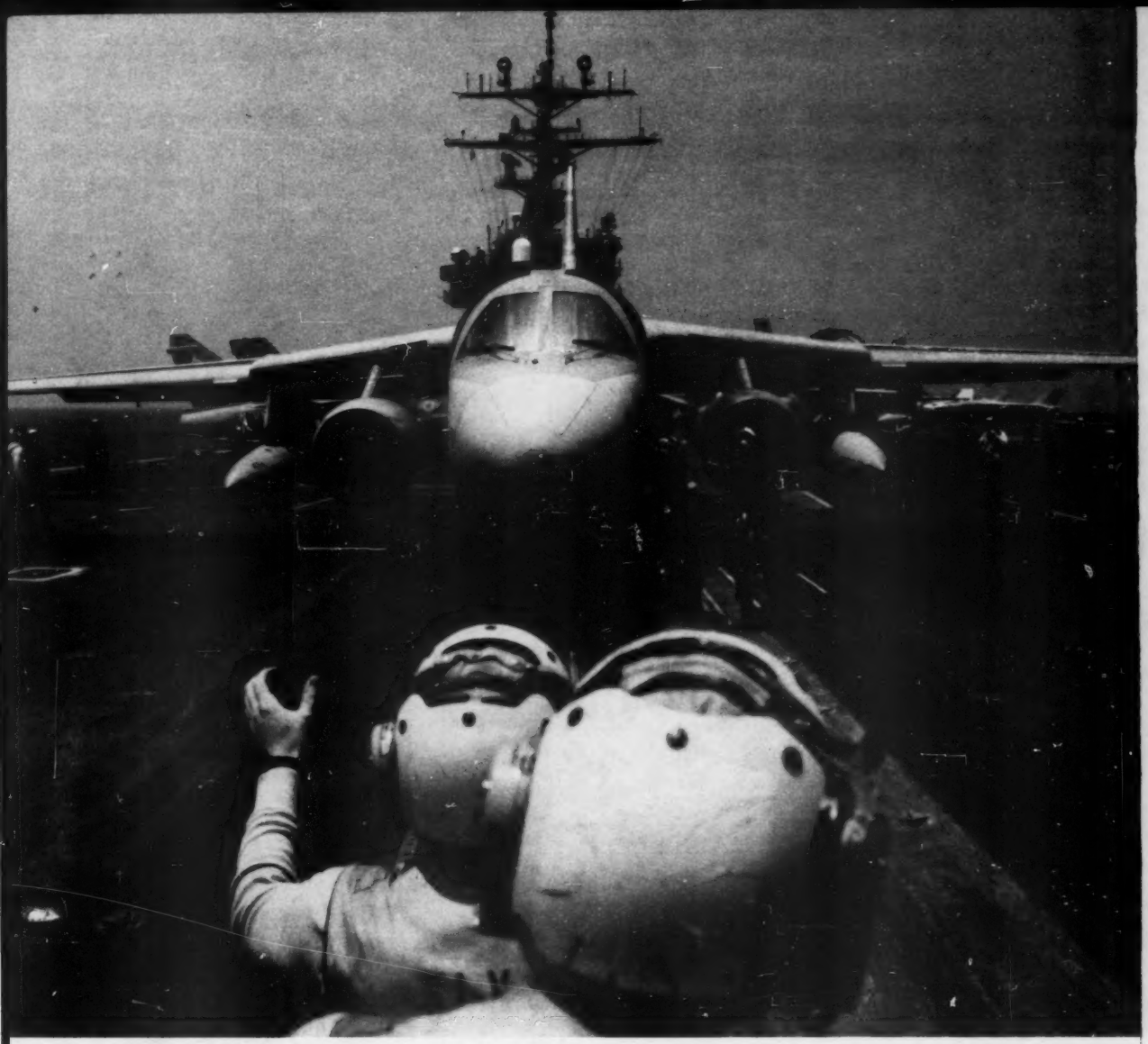
The only things that go into a flyoff are men and machines. That's as far as we have to look to find the elements that make this activity downright scary.

Our poor airplanes have been subjected to all the nastiness that carrier aviation can dish out — saltwater washes, hard arrested landings, max-G "bogie-at-your-six" turns, heavy cat shots. Despite tons of TLC, by the end of the cruise, the planes most likely have more than a few pink sheets in their aircraft discrepancy books. And what about the "hangar queen"? It probably hasn't seen daylight in months, and won't, until the "day-before-the-flyoff" PMCF Olympics. Just how ready is that aircraft to make it home? As good as your maintenance has been for the last six months at sea, can the aircraft make the transition to the land environment? When was the last time you used heavy braking, antiskid and spoilers to stop? Will all these things work on touchdown at the fly-in with aircraft rolling in front of you and others coming in behind you?

What about the people? Certainly at man-up time, the aircrew will be well-nourished, well-rested and alert. You can bet that the squadron has never been less rested than at the launch time for the flyoff. The 24 hours before launch are filled with 36 hours of work. Transitioning the squadron from full-steam-ahead carrier ops to 50 percent leave-hangar-ops in a matter of 48 hours is no small task.

Department heads are making all those last-minute adjustments to their end-of-cruise reports. Division officers are running around getting end-of-cruise transfer evaluations smoothed up and branch officers are trying to get their men's last-minute leave papers approved.

The operations bubbas are counting and recounting the classified pubs or prepping their stand-ins for the time they will be on leave. Add to



that getting personal matters squared away, and you can see that no one gets very much sleep.

Far more hazardous than the aircrews' physical state is their mental condition. Channel fever is a contagious malady that grips the most stalwart Naval Aviator. So, instead of catching the precious shut-eye they need, most of the wardroom is probably at midrats savoring the last of the sliders — with cheese, of course — or slurping down an autodog. Or, perhaps they're in their staterooms putting one last layer of bubblewrap around some trinket. How good a brief do you think these crews will conduct after trying to get their personal cruise boxes into the ready room, or turning in their stateroom keys?

There are dozens of items that will steal attention away from the brief. Flight leads have to anticipate the distraction and make sure they cover all the major points, as well as the "what ifs."

At launch time, 70 percent of the ship and air wing personnel are intent on getting every last aircraft off the boat so they can get on with the business of pulling into port. Every aircraft maintainer, and every air department member, has at least as many things on his mind as the aircrews. The ingredients for disaster are all there. There is no way to eliminate the naturally human tendencies that make end-of-cruise flyoff an inherently dangerous event. We've got to recognize the mishap potential and minimize the possibilities.

LCdr. Nortz is a B N with VA-95.

The first indication that something was wrong was on takeoff — I noticed it was taking more power than normal to move the A-6. It wasn't enough to send alarm bells off in my head, just enough to note as an up-gripe.

Baja Bomber

By LCdr. Jim Seaman

THE flight was routine until we entered the VFR touch-and-go pattern. The weather was marginal VFR in rain, winds were calm, and the runway was very wet.

We completed three touch-and-go's. Our fourth touchdown was on centerline with a slightly sagging ball at 118 KIAS in a normal rate of descent at 34,000 pounds gross weight. At 110 knots the anti-skid light came on. I turned the anti-skid switch off. I wanted to avoid getting on the brakes too hard. The rollout was going to be longer than normal because of the calm winds.

Suddenly I realized that it was becoming increasingly difficult to steer.

. . . Suddenly I realized it was becoming increasingly difficult to steer. Just after crossing the midfield gear at 70 knots, the A-6 yawed hard left . . .

Just after crossing the midfield gear at 70 knots, the A-6 yawed hard to the left. I tried to counter with full right rudder. I engaged NWS and tapped the right brake. The aircraft continued left in a right skid.

We were going off the runway, so I secured both engines. The A-6 left the runway at 50 knots in a right skid with the nosewheel parallel to the direction of skid.

The aircraft hit the grass, tipped up and slid on the right wing, right main and nosewheel. We then hit a concrete pad that straightened the aircraft out in relation to the direction of the skid. We stopped 200 feet after leaving the runway, directly in front of the duty crash truck. We had the crash crew's attention immediately.

Our squadron had recently returned from the boat. The mishap A-6 had only one shore-based sortie prior to ours. That landing was on a dry runway where there was enough friction to turn the tire.

The friction generated by the tire on the wet runway was not enough to turn the left tire. As advertised, the anti-skid system sensed a failure and illuminated the anti-skid light on the annunciator panel. The A-6 hydroplaned 1,500 feet until hitting the midfield gear. Hitting the gear was enough to mate the tire with the runway, starting the left yaw. Approximately 3 inches of rubber were ground off the tire.

What would I have done differently? I don't believe there is anything I could have done to keep the A-6 on the runway. Yet, if I had acted on any of the following three warning signs earlier, the incident could have been prevented:

1. After I saw that I needed more power to taxi, I should have downed the aircraft until the brakes were changed.

2. I should have believed the anti-skid system was telling me something was wrong and not assumed it was another one of "those" failures. I should have taken my aircraft around for an arrested landing.

3. I did not realize how serious the situation was getting as the steering became worse. At the first hint of loss of steering, I should have gone around for an arrested landing. ◄

LCdr. Seaman is Maintenance Officer of VA-185, an A-6 squadron permanently forward deployed in USS *Midway* (CV-41).

5 The Alert

By Ltjg. Edward S. Wolski

I HAD been in the squadron only four months and already I was at war. I was determined to prove myself an integral part of the finest strike-fighter squadron in the Navy. We were in the battle-group phase of workups and we had begun hostilities against the Orange forces. It was a brand-new, exciting experience, but eight weeks of operating around the ship had not made me comfortable with carrier operations. But my uneasiness gave way to the fervor of the moment.

This particular morning, I was scheduled to stand a two-hour Alert 5. Previously, our alerts had been launched and it was difficult to organize my thoughts as I entered the ready room. I was excited. When it was time to man up, I almost walked out without all my gear.

McDonnell Douglas Corp

My aircraft was on the elevator about to be brought up to the flight deck from the hangar bay. When it got to the roof, I would start up, go through my pre-launch checks, then shut down. At that point, the alert would be "set." I preflighted in the hangar bay, but couldn't open the panels to check the avionics. Finally, I manned up for the elevator ride.

Once on the flight deck, my jet was pulled forward so we could spread the wings and load the missiles. I waited impatiently for the ordnancemen to hand-crank the wings down and load the Sidewinders. As I waited, I went over the cockpit switches, making sure they were in the right positions. With the missiles finally loaded, I turned the battery on to begin the start sequence.

Immediately, there was a problem, and I called for a trouble-shooter to look at an inoperative engine-fire-warning system. He reset the circuit breaker, and the problem was fixed. I kicked myself for not getting out and doing a proper preflight while the missiles were being loaded. I hope nothing else would go wrong as I started the APU.

With both engines turning, I reached for the INS switch, stopping long enough to give myself another mental boot. I had left the ready room without any data for the manual INS alignment. It was too late to do anything about it. I hoped the SINS cable was working and switched my INS to "CV." Once again, my luck held and the INS began its alignment. I entered a few critical waypoints and made a note to get the rest later.

I finished the pre-launch checks without anything else going wrong, set the flaps to half, and the trim to 19 degrees, nose up. It looked like I had a good jet so I shut down, keeping external power to hold my INS alignment. I finally felt on top of things. Wrong again!

A half hour later, a yellow shirt came up and told me that I was being moved aft. With a sinking feeling, I shut down the INS, and the external power was disconnected. I thought of those ugly standby passes I had practiced at the field and resolved to get external power reconnected as soon as possible.

Once I was respotted, it seemed to take forever to get a good alignment. I hoped the alert wouldn't be called away for just a few more minutes.

"Now, launch one Alert 5 DLI!" So much for hoping.

The engine starts were quick and flawless, but the INS countdown took forever. I was otherwise ready to fly so I accepted the degraded alignment and pressed on.

The yellow shirt taxied me towards cat 3, and I began my takeoff checklist from the bottom up, just like they taught me in the RAG. I got to trim and flaps but I was interrupted by the yellow shirt's signal to spread my wings. As my luck would have it, the left wing wouldn't spread. Rather than taxi into the shuttle with a folded wing, I stopped and cycled the wingfold. It worked, and with two good wings, I moved on. But I had a nagging feeling that something was wrong. I took my eyes off the taxi director to peek inside the cockpit to find the problem.

I did an abbreviated takeoff checklist, checking the flaps, but *remembering* the trim setting instead of *checking* it. At this point, I discovered multiple Xs on the flight control display. Any thought of finishing the takeoff checklist disappeared as I tried to simultaneously troubleshoot and taxi into the shuttle. My first reset attempt fixed the flight controls and I was ready to go as I lowered the launch bar and moved forward. Finally, the taxi director gave me the tension signal and I went to MIL power. Trying to remember the procedures for an afterburner launch, I wiped out the flight controls, looked up from the instruments, only to be greeted by the cat officer's suspend signal. What was wrong now?

An alert troubleshooter had seen zero-degrees trim set on the horizontal stabilators and called for the suspend. I reset the trim and went into tension again. On the second launch attempt, *I* suspended the catapult and downed the aircraft myself for flight control problems.

Although it took a while to figure out what was wrong, it didn't take *any* time to guess what would have happened had I launched with zero trim. The Hornet is a great jet, but I am sure it doesn't float well.

The reader might be inclined to chalk this incident up to another boneheaded JO stunt — which is probably true. But I also believe that a few classic mistakes show up.

First, an error you'd find in the training command: performing checklists without looking at all the items. How hard would it have been to look at the trim setting? It would have certainly saved me a meeting with the Skipper.

Second, I let the excitement of an alert launch interfere with my normal routine; instead of taking things one by one, I rushed into a potentially dangerous situation.

Finally, failure to perform a proper preflight cost 10 minutes on startup and added to the overall confusion.

Ltjg. Wolski joined the Kestrels of VFA-137 in December 1988. On another Alert 5, he launched into a "no-notice" AIM-7 firing exercise and killed a supersonic, high-altitude target.

The Deal of the Century Is the Scan of a Lifetime

By LCdr. Barry E. Rainey

IS there such a thing as attention failure? Sometimes we call it a "rusty scan," or simply write it off to not flying for a while. Many of us are watching our annual flight time get reduced for various reasons. Although other factors come into play, a common link is attention failure during periods of high aircrew tasking. Training can help prevent this.

Scan breakdown can be described as inattention, fixation or fascination. Inattention is the failure to establish task priority and can occur even under low tasking conditions. For example, on a SID a pilot has flown many times; he flies through an assigned altitude while switching to a new frequency. He was not task saturated; he wrongly established the task priority while his attention was on another matter.

Fixation occurs when a pilot excludes other tasks to devote full attention to the first priority task. During a night dive-bombing run, the pilot fixates on the target in order to get a better tracking solution, and he forgets to watch his altitude. His aircraft hits the ground.

Fascination occurs when a pilot perceives all the priority tasks at hand but fails to respond in the correct manner. He may feel detached from the situation, fearful and often confused as to why this is happening to him. He is watching the problem rather than responding to it.

Mechanical means are one way to prevent scan breakdown. The F/A-18 is good at alerting the pilot of attention-related problems. Ground proximity warning systems, radar altimeters and voice-activated warning systems are but a few of these improvements. The Naval Air Systems Command, with fleet input, improves the current mechanical and software systems. Do you see a better way to make your aircraft work for you? Let the program manager at NAVAIR know.

Nonmechanical techniques used in simulators to improve attention span are overlearning, integration and rapid shifting. Though you may not be familiar with these terms, most squadrons use each technique. Overlearning prepares aircrew for immediate action emergencies or boldface memory items. You are tested so often that the material becomes second nature.

Integration prepares you for multiple complex emergencies. You've undoubtedly met Ltjg. Masochist. He's the guy who pushes every emergency button on the simulator panel just as you've started your final GCA approach. The simulator-induced attention failure is usually quite entertaining for your squadron buddies watching you squeeze several ounces of black juice from the control stick. This type of training might be hard to master, but the idea establishes the mental processes necessary to overcome task saturation in difficult situations.

Rapid shifting of attention is the last way to train to increase attention span. Remember the S-1, S-2 and S-3 IFR scan maneuvers? They still work and are an excellent way to polish the old rusty scan. ◄

LCdr. Rainey is the Safety Officer for VFA-305.

Toxic Trip to Trouble

By Lt. James Hunter

AS I walked toward the gray-and-white Hercules to begin my preflight, I made my usual stop at the line of pallets waiting to be loaded. There was nothing special. A group of 55-gallon drums of trichloromethane (cleaning solvent) was the only hazardous material and I didn't have any passengers since a reserve C-9 was on hand.

After a normal run-up, we departed NAS Sigonella for a four-hour flight. As we climbed through 17,000 feet toward our final altitude of 21,000, the loadmaster called me on the ICS.

"Sir, we have a problem. The tops of these drums look like basketballs, and I'm starting to get fumes back here." By the time I began the smoke-and-fumes elimination checklist, the fumes had filled the cockpit.

We quickly donned smoke masks. I declared an emergency. I requested and received clearance for a 180° turn and a descent back to Sicily.

Though smoke-and-fumes elimination is bold face in the KC/C-130F NATOPS, I reached for the emergency procedures card next to me before calling out the next procedure.

"Emergency depressurize, engineer." There was silence, and I looked at my seasoned flight engineer with a questioning expression on my face.

"I don't think that's a very good idea, sir," my loadmaster called from the rear. "If we depressurize, the drums could blow." After reconsidering, I agreed and decided to bring the cabin pressure down with the descent and keep the crew on oxygen.

As we passed 10,000, the cabin pressure looked good, and the tops of the drums had returned to their original shape. We continued the smoke-and-fumes elimination checklist.

A postflight inspection showed a stencil on the *bottom* of the drums — where no one could have seen it. The bright yellow warning said, "Cargo Vessel Only." Due to the pressure decrease at altitude, and improper packaging, the solvent expanded and vaporized, causing the toxic fumes to escape.

NAVSUPPUB 505 says, "This type of hazardous material exhibits an anesthetic, irritation, noxious, toxic, or other similar property which can cause extreme annoyance or discomfort to passengers and crew in the event of leakage during transport."

We had a few things going for us, though. We didn't have passengers, and we had a heads-up loadmaster. We took time to analyze the situation before we acted. If we had had cargo that was more volatile or corrosive, we would have had a much more serious problem. ◄

There were several chances to catch this potentially catastrophic hazard before the aircraft took off. Awareness was the key. The Navy Air Terminal Procedures Conference, 21-22 September, in Norfolk, addressed similar safety concerns. — Ed.

Lt. Hunter is VR-22's assistant admin officer at NAS Rota.

LETTERS

Re: Bravo Zulu (April '89)

Keflavik, Iceland — I'm writing in response to a Bravo Zulu that went to Lt. Mike Palmer and his C-130 crew of VR-22, based at Rota, Spain. I believe the crew erred when they asked for a GCA line-up left of centerline. Since they couldn't make turns to the left, they were setting themselves up for disaster. The BZ stated:

"With all NATOPS procedures exhausted, Ltjg. Bauwens notified air traffic control and requested a 180-degree right turn back to the field. GCA was informed of the emergency and asked to align the C-130 left of the GCA centerline so that the pilot wouldn't have to make any left correction on final . . . to avoid using ailerons, normal procedures were altered on touchdown, and nosewheel steering was used immediately . . ."

On this day in this one situation, it worked. As an air traffic controller, however, I would not recommend this procedure to others. Instead, I would consider a GCA line-up on the opposite side of the centerline. For example, if you cannot turn left, take a line-up on the right side and vice-versa.

The angle from which the C-130 approached the runway did not allow for an in-flight correction, and the aircrew had to rely on nosewheel steering to keep the aircraft on the runway, complicating their already critical aircraft malfunction. Had the aircrew elected to request a GCA line-up on the right side of the centerline, they would have been able to approach the runway from straight in, eliminating the need for much, if any, nosewheel steering on touchdown.

AC2 Jeffrey D. Abbott
Box 27, USNAS
FPO New York 09571

As depicted, a line-up left of centerline does not allow for a corrective turn to the left thus at GPI (ground point of intercept) the aircraft is heading off the runway.

An approach from the right of centerline would have given the controller the ability to issue corrective turns to the right, resulting in a straight-in approach.

• The proposed procedure is the most logical course of action to avoid executing left turns on final approach. However, other factors have to be considered, such as weather (VFR or IFR), winds and whether minor corrections to the left could be accepted, etc. Lt. Palmer had practiced a similar emergency in the simulator and discussed the situation with other aircraft commanders. This weighed heavily on his decision.

The pilot has ultimate responsibility for the conduct of his flight. In this instance, the crew made a safe recovery during a crisis. — ACCM Ken Neuroth, air traffic control analyst, Aircraft Operations Division, Naval Safety Center, Norfolk, Va.

t Seemed Like a Good Idea at he Time

irginia Beach, Va. — Poor Bubba. OPNAV-NST 3710 made him stop drinking 12 hours efore a brief instead of 12 hours before the flight. ust because some guys messed up big time, now verybody's on his case to wear his oxygen mask ll the time. He's pestered by so many ground-ounding complainers that flying a low-level is nore like taking an elevator ride. Can a guy be professional, tactical, aggressive and have fun at the same time?

The rules of flying are in place. The CO will tell you there's no decision to be made, just follow the rules. Most of our decisions are automatic because of repetition. Yet, safety statistics show more than half of our mishaps involved crew error. How many times have you heard, "It seemed like a good idea at the time"?

Poor decisions are often called "learning experiences" and make great sea stories in the ready room and at the bar. Bad decisions are sometimes called mishaps and still create stories, even if the decision-maker is no longer around to tell his version.

Yet, all mishaps are not the result of bad decisions. Sometimes you can do everything right, and it just isn't your day. Just ask the guy who flew the OK pass and trapped only to have the wire break. The crew made the right decision in getting out of the aircraft as it dribbled over the side.

So what about those wrong decisions that get us into trouble? If we disregard or violate a known rule, we are labeled unprofessional and must pay the consequences. If we do the same thing and don't get caught, the episode is termed a "learning experience."

What's important is the knowledge we gain from the first-hand experience or from hearing or reading about the incident. This will help us become professional, tactical, aggressive and even fun-loving aviators.

We fly safer by following the rules, learning by experience, reading about incidents (like in Approach), and making the right decisions at the right time.

Poor Bubba's not as bad off as he may think. He's a proud fellow, and he's shown the Navy a thing or two. This is reflected in last year's lowest mishap rate ever. Bubba, you must be doing something right.

Cdr. Gary B. Hudspeth
Safety Officer
COMTACWINGSLANT
NAS Oceana

Approach Looking Good

Hempstead, N.C. — I enjoyed the last few issues of Approach. The lively layout just keeps getting better with time. Military publications often just drone on and on. As public affairs officer for ONR and deputy PAO for NAVAIR, I found out that a military magazine must earn its existence. Keep up the good work.

A. Michael Leahy

• Mike Leahy, a retired Marine Lt.Col and a helicopter aviator, is a well-known aviation artist whose striking watercolors have appeared in several publications, including Approach. — Ed.

Approach welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: Approach Editor, Naval Safety Center, NAS Norfolk, VA 23511-5796. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

BROWNSHOES IN ACTION COMIX

"The kind real aviators like"
By Lt. Ward Carroll

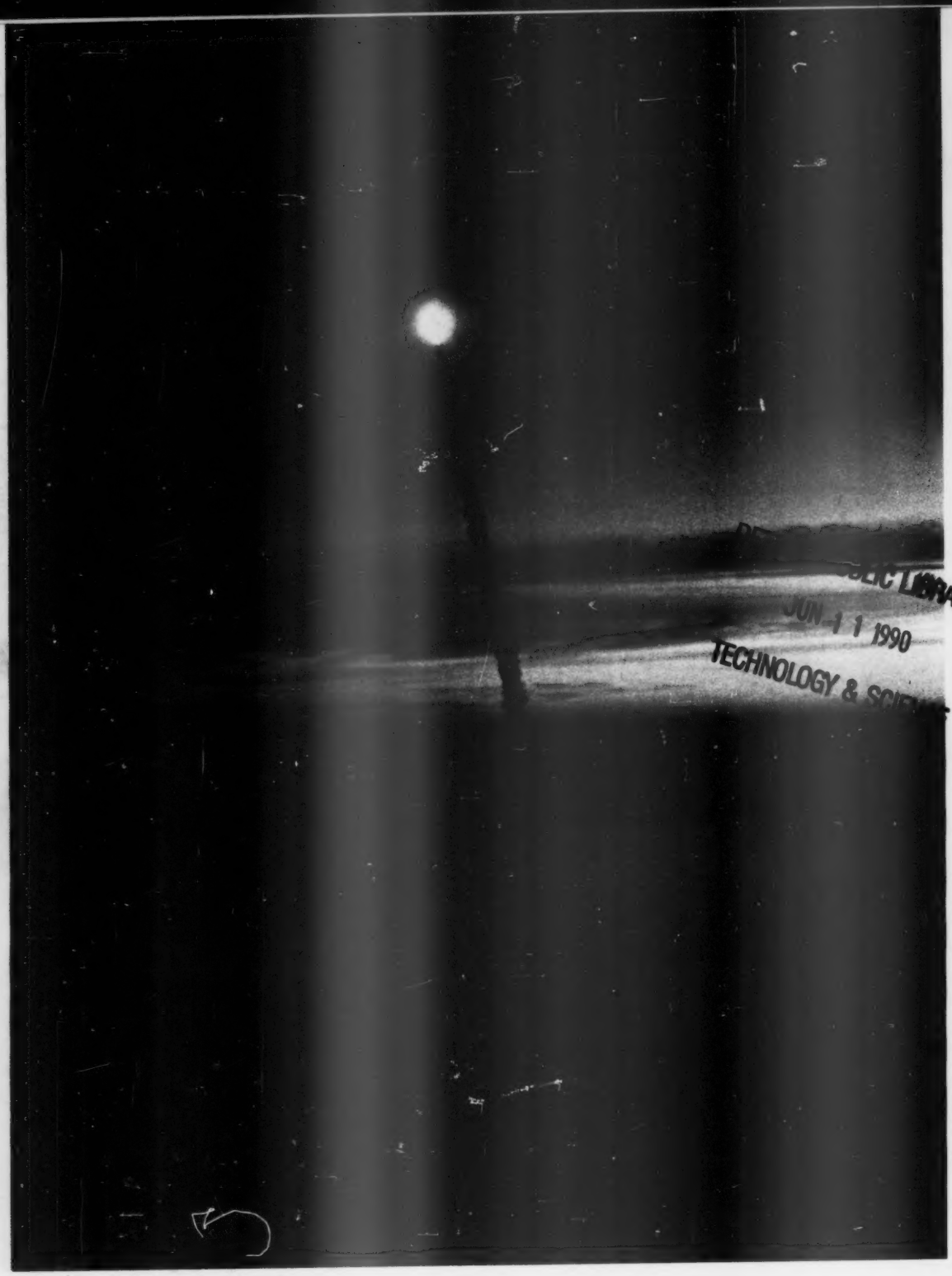
Brownshoes Safety Cliché Clinic

"Fly as if your mother or girlfriend were with you."

Under *no* circumstances is this to be confused with your mother-in-law or ex-girlfriend. . .

". . .and another thing; you only live a few hours away but we never get to see our daughter or our grandchildren. We get the feeling you don't like us."
"Maybe we could come visit you all, instead. Your house is kind of small, but we'll manage. Don't you get some sort of bonus? I hope you're not going to waste it on another boat. . ."
"We're not flying together tonight, are we?
BOLTER! BOLTER! BOLTER!
". . .it was owned by a little old lady who only used it to jam her neighbors on weekends. Did I tell you about our same-day Congressional approval?"
REMOVE BEFORE FLIGHT
601
MAKE AN OFFER!
"Fix the aircraft as if you were going to fly it."

Maintenance personnel should avoid fixing an aircraft as if they're going to sell it.



Aviation Safety is no shot in the dark.